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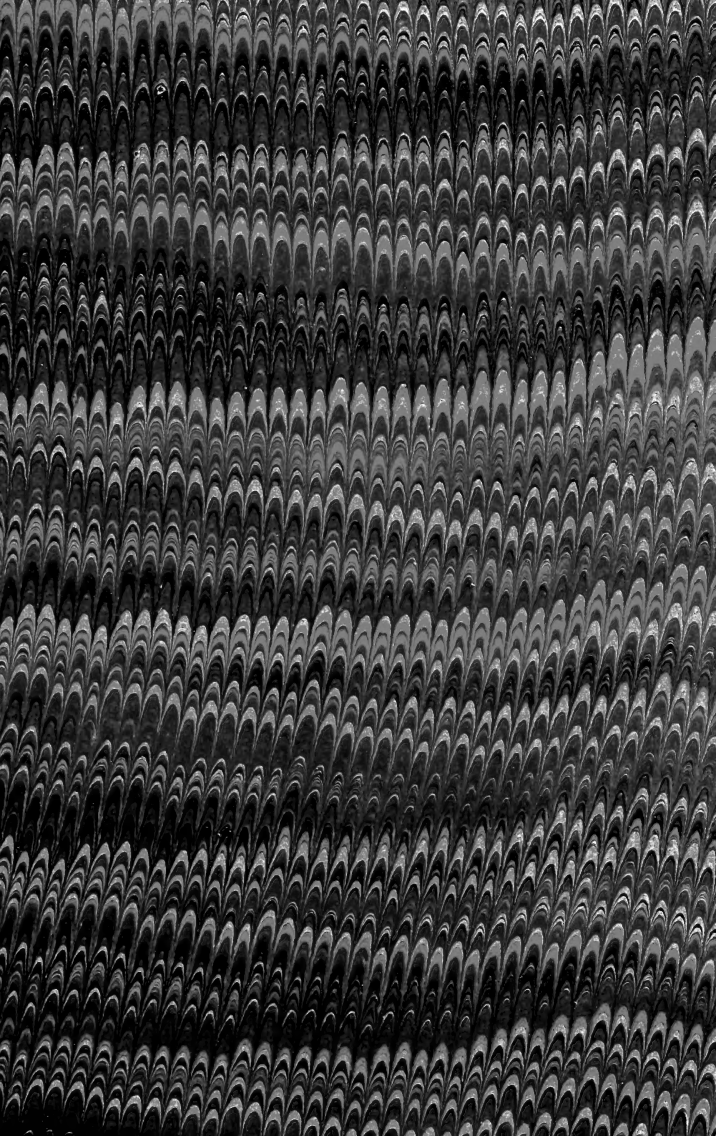
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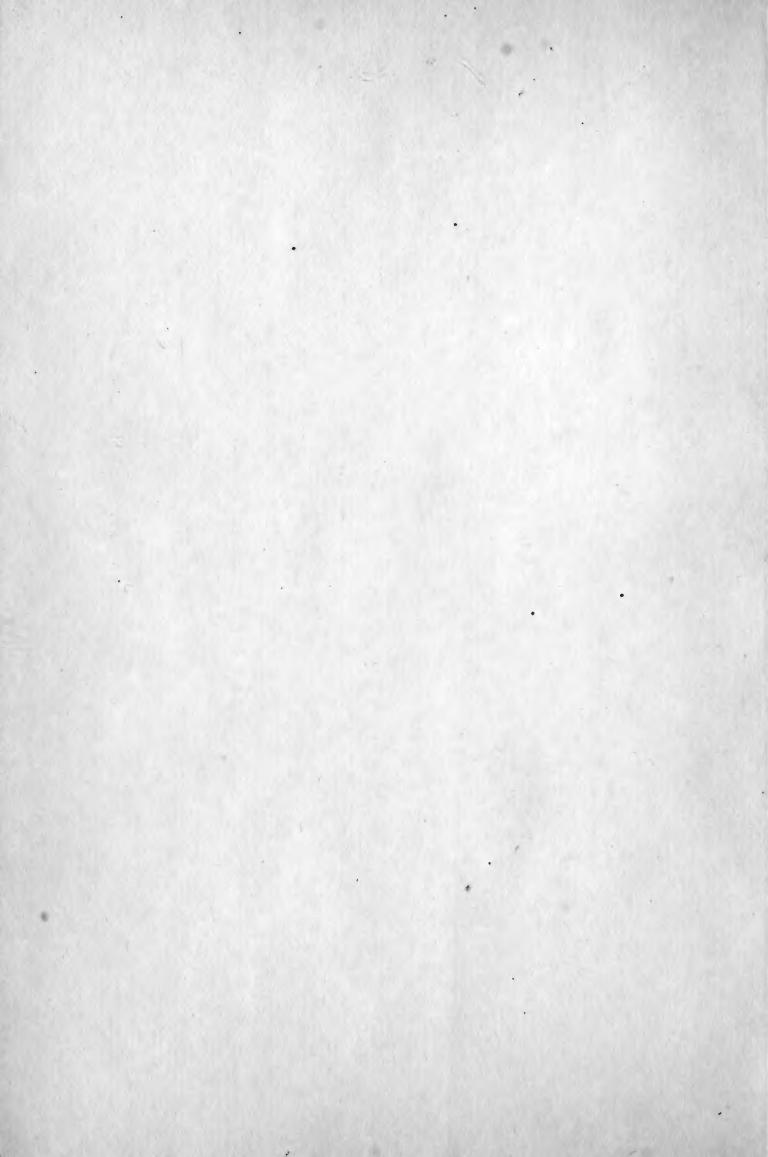
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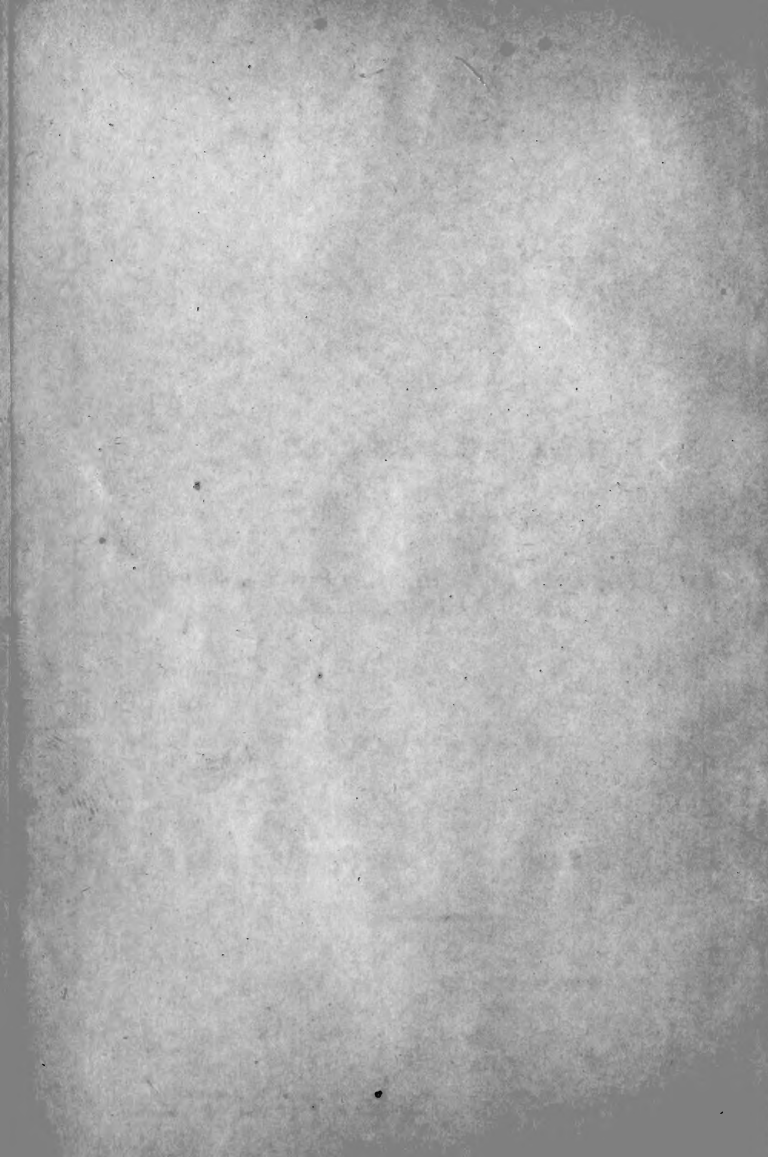
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UNITED STATES OF AMERICA.







AN IMPROVED SYSTEM

OF

EDUCATING THE HORSE,

AS TAUGHT BY

R. M. GILBERT, M. D.,

EMBRACING TREATISES ON

The Diseases of Man, the Horse, Cattle,
Their Treatment, &c.

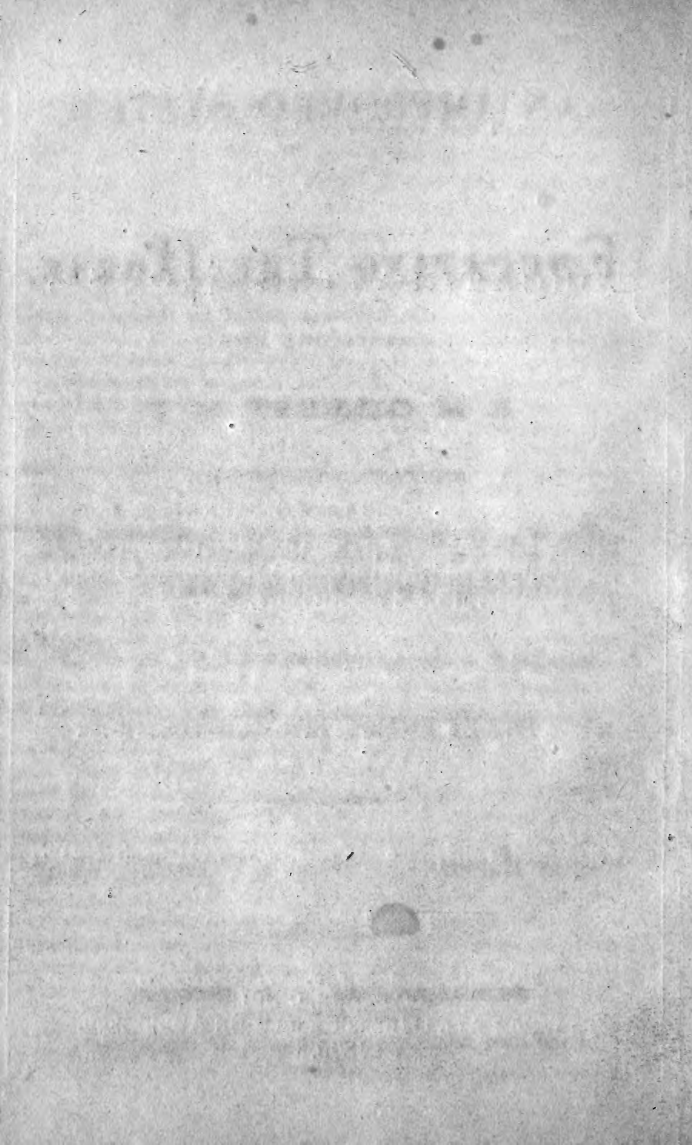
WITH

Directions to Farriers.

W. HAYNES, - Gen. Traveling Agent.

PUBLISHED BY J. W. BOWEN,
MCARTHUR, OHIO:

To Whom All Orders Should Be Addressed.
1875.



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PREFATORY.

The author of this work has endeavored to give the reader correct ideas of the nature and treatment of diseases occurring in that faithful servant and noble animal—the horse. It is intended to supply the wants of that class of agriculturists and horsemen—and their name is legion—who are in favor of a more sanative and rational system of medication than that recommended in many works on farriery. Such individuals, in consequence of the scarcity of competent veterinary surgeons, are compelled to treat their own horses; and this work is intended to be to them, in the hour of need, one that will enable them to restore the sick and cure the lame.

The author has aimed to be brief, yet practical, and has selected selectively, from the *Materia Medica*, those agents which his own experience, during a professional career of twelve years in the vicinity of Philadelphia, and three years a veterinary surgeon in the U. S. army, have proved to be the most efficacious in curing diseases and lameness, so far as medicine is capable of accomplishing these objects; for it is a well known fact that medicine unaided by nature in the silent operation of the life forces, is, in most cases, positively useless. Some knowledge of the law of physiology, as it applies to brute bodies, is indispensable for the successful treatment of diseases, and all who practice the veterinary art should study that law, not only in view of practicing understandingly, but for the more important purpose of preventing many thousands of unnecessary cases of disease and premature deaths that are annually occurring among all classes of live stock; for many diseases and premature deaths follow encroachments on the sanative laws of life. The more a man knows of physiology, the less faith he has in medicine. He resorts to our great catholicon, nature. Animals, if left to themselves, invariably do the same thing. They seek rest and some simple agent, which their own instinct points out as the Balm of Gilead, and they almost invariably recover, except when about running their last race. The province of the physician is to know when to withhold medicine; for many diseases are self-limited, and would, if the patient were placed in favorable circumstances, run through their various grades up to a healthy termination without the use of some of the trash styled medicine.

Those who wish to practice according to the principles laid down in this work must learn to exercise patience and practice rational expectancy. Nature performs all her operations in a series of slow and gradual changes, and any attempts to hurry her can only be accomplished at the expense of vital principle. The reader will perceive that the therapeutics are selected with an eye single to their innoxious qualities—not calculated, like some horse medicines, to make a well horse sick, but for the very reverse of it.

Health, however, must not be supposed to exist in drugs and physic balls. The sick animal must be transferred within the ramparts of the science of life, the means for accomplishing which are comprehended in a strict system of hygiene, and without which medicines may as well be thrown to the dogs, as given to a horse. The author considers it due to himself to state that he still adheres to those opinions promulgated in former works, regarding the vile practice of blood-letting and the use of agents that are known to depress the vital principles; and his aim is and ever will be, so long as he has the power to substitute sanative medication for that which experience has proved destructive; and to advocate the cause of those denied the power of speech—unable to plead their own cause. If there is credit following the labor of the author in the cause of reform he declines to receive it, for it is the property of the profession at large. He is indebted to physicians of all ages and sects for many suggestions and facts that have illuminated his professional path, and he has no desire to see laurels placed on the wrong brow.

Some change has, however, taken place in the author's views regarding the several medical sects. He was formerly somewhat of a specialist—wedded to one particular system of practice. He now practices without regard to sect—eclectively—selecting from the various systems those means and agents best calculated to aid, foster and perpetuate the physiological state without regard to their origin or kind, or whether they be mineral or vegetable, reserving to himself the right to reject every process and agent which militates against the sanitary forces of the body.

It is generally customary among authors, when sending forth a book, to write some sort of an introduction. I propose for once to deviate from the general custom, and therefore launch this book into the great ocean of literature without any sort of introduction, preferring to let it carve its own way to public patronage on its merits alone.

R. M. GILBERT, M. D.

The Symptoms and Cures of Different Diseases of the Horse.

Weak or Inflamed Eyes.

Bleed in the junction of the eye vein; then run a seton in two inches below the eye, and anoint the tapis twice a day with equal parts of turpentine and tincture of cantharides, for fifteen or twenty days, and use the following eye wash:

Eye Wash.

Sugar of lead, sulphate of zinc, blue vitriol, alum, and salt, of each one drachm, two ounces epsom salts, put all in one quart of soft water, and wash the eyes twice a day until cured. This is very good for man or beast.

Eye Salve.

Take one nutmeg and grate it very fine; mix with one large table-spoonful of hog's lard, and grease in the hollow above the eyes twice a day; this will clear them up in ten or twelve days.

To Cure Founder.

When you find your horse is foundered, take gun-powder, soft soap, and soot from a chimney, of each one table-spoonful; make in a pill with flour and give at one dose; this will cure in three hours, if given immediately. In fifteen minutes after give one quart of hog's lard; ride till warm.

Scours in Horses and Cattle.

Feed tormentil or septfoil one ounce three times a day, or burn beef bones so that you can powder them, and feed one table-spoonful three times a day in dry feed. This never fails, if given in time.

Lung Fever.

Symptoms—The horse is taken with a chill; then breaks out in a cold, clammy sweat, holds down his head, never offers to lay down, stands wide in front, and groans when he is made to move; his legs and ears are deadly cold, caused by letting him stand in some cold place, or giving him too much cold water when warm. To cure—First ascertain the stage of the pulse, which beats from thirty-six to forty-two per minute in a sound horse; bleed till his pulse becomes natural; then blister around the breast and chest with the liquid blister; then take tincture aconite, spirits nitre, and laudanum, of each one ounce; add to it one gallon of spring water; let him drink one pint of it every two hours; rub and foment his legs with alcohol, camphor and red pepper till they get warm; give him water to drink that slippery elm bark has been boiled in, or hay tea with plenty of gum Arabic in it; open his bowels moderately with salts and linseed oil; never give aloes in case of lung fever. Keep on with the above and your horse will be cured if taken in time.

Ringbone, Spavin, Curb Splint, and Windgalls.

To cure—Take oil origanum, tincture iodine, oil stone, tincture camphor, spirits turpentine, tincture cantharides, corrosive sublimate, oil cedar, croton oil, gum euphoribum, of each one ounce; mix with ten ounces hog's lard; then cut off the hair the size of the lump; then use the ointment lightly once a day for three days; then leave off for three days, and grease with castor oil to preserve the roots of the hair; then wash clean with soap and water; then use as before, and so on for twenty-four days, and your horse will be cured of his lameness in all cases, and will remove the lumps if not united to the general bone. It is also good for stocked ankles or milch leg.

Tetanus or Lock Jaw.

This is spasms of the muscles of the jaws and spinal column. To cure—Bleed moderately and rub

the jaws and spinal column thoroughly with chloroform. This will cure in first stages. If this should fail, split the end of the tail and cut out the first caudal vertebræ, or tail bone, and this will cure any case in three hours.

To Cure Corns on Persons' Feet.

Pare off the hard part of the corns; then use carbolic acid on them twice a day for five days; then let them go, and in ten days they will come out and be cured without any pain.

For Big Head.

Feed one table-spoonful of Curtis' Horse Powders once a day, and one table-spoonful of stramonium seed once a day, the one in the morning, the other in the evening; and use the general liniment twice a day on each side of the head. This has never failed to cure if given in time.

To Make Green Ointment.

Take rosin the size of a hen's egg, melt in a vessel over a slow fire; then put in the same quantity of beeswax; when this is dissolved, add one-half pound of hog's lard; when this is melted, put in two ounces of honey; when this is melted, add one-half pound spirits turpentine, but fine white pitch is far better, if it can be obtained. Keep it gently boiling, stirring with a stick all the time till melted; then take off the fire and add two ounces verdigris; stir it right well; then put back on the fire and give a few bubbles; then take off and strain through a fine seive. It is then fit for use. This will cure cancers, scrofulous sores, chronic ulcers, on man or beast.

To Make a Horse Appear as if Poisoned.

Take a tallow candle and rub his gums and teeth right well with it, and he will refuse the best of feed or drink until he would starve, unless removed. To cure—Take fine charcoal, water, soap, and a brush, and give his teeth and gums a good brushing, and he will be cured.

Rheumatic Pain, Cramp and String Halt.

Take equal parts of dog's grease and turpentine, rub the leg affected twice a day, from the hoof to his body, and heat it in with a hot iron. This will cure cramp or rheumatic pains in fifteen days. For string halt, you take dog's grease alone, rub the leg twice a day, and heat it with a hot iron. Let the horse stand quiet. This will cure any case in fifteen days.

To Make a Horse Lame.

Take a hair out of the mane or tail; thread in a darning needle; pick up his fore leg and run the needle through the center of the large tendon, half way between the knee and fetlock joint; cut off the hair the same length as the hair on his leg on each side, and in ten minutes he will lose the use of his leg entirely. To cure—Take a pair of pincers and pull out the hair, rub with liniment, and in ten minutes he will be well.

Water Farey.

This is a swelling along under the chest, and forward to the breast. Bleed, rowel in the breast, and all along the swelling, six inches apart, apply the general liniment, move the rowels every day, let them stay in until the swelling goes down. Give soft food, mashes, with the cleansing powder in it. This is dropsy. Many causes for it. See Youatt's work on it.

Hoof Liquid.

For tender feet, hoof-bound, etc., linseed or neats foot oil, one-half pint of either, four ounces turpentine, six ounces oil of tar, three ounces origanum; shake this well and apply it as the directions for the ointment tells. This is the best if the horse has been lame long—it penetrates the hoof sooner than the ointment. Both of them should be applied at night, so the horse can go to work in the morning. He need not lose one day's work. Hoof Evil or Thrush Grease.

Stiff Shoulders or Sweeny.

Produce a counter irritation by making an incision

about five inches from the wethers down on the shoulder blade; then take hold of the skin on either side of the incision with the forefinger and thumb of each hand and draw outward, and by so doing the air is forced in; then rub and force the air all round the shoulder blade from top to bottom, and this will cure any case of sweeny, let it be of what stage it may.

Hoof Bound or Tender Feet.

Cause of this is fever in the feet, founder or gravel. The symptoms are hot feet and a drawing in, one inch from the top of the feet, at the heel; always have the feet spread at the heel, but not rasped above the nail holes, for it will do the foot an injury. Follow the directions given here. Use either the hoof ointment or the hoof liquid; apply it according to the printed directions. For hoof bound or tender feet, apply it all around the top of the hoof down one inch every third day. If for split hoof, apply it every day. First have a stiff shoe on the foot, and cleanse the cut or crack. Never cut or burn for it.

Cracked Heels.

Cause of this is over feed and want of exercise, or standing in a filthy stable. Symptoms well known—a discharge of offensive matter from the frog of the foot or round the top of the foot; often the frog of the foot will come out; then you must put a stiff shoe on the foot to keep it from contracting. To cure—Bleed and physic, and poultice the foot with boiled turnips and some fine ground charcoal; this must be done every night for two or three nights; then wash the foot clean with castile soap and soft water, and apply the blue ointment every day; keep the horse on a clean floor and he will be well in twelve days.

Worms.

Symptoms—The horse eats, but will not thrive; his belly gets big; his hair stays. To cure—Give one quart of strong tea made of wormwood, at night; the next day give seven grains of calomel, make it

into a ball and give it, give no cold water for forty eight hours, make it milk warm; give him two or three bran mashs, and some of the cleansing powder, if he shows any more symptoms repeat the dose in three weeks. This will never fail.

Magrins or Dumbness.

The disease makes its appearance in different forms; frequently it is noticed by the dullness of the horse in driving, and the inclination to leave the road or bear upon one rein, and incline to sleep while standing; and again he appears to have lost all feeling, pays no attention to the whip, and will go to sleep with the mouth full of feed. In other instances the horse is taken with jerking of the head up and down, and will run back and fall down, lay a few minutes, and then get up and go on. This is called fits by some, but it is the same disease, and by another form, caused frequently by high feeding and want of exercise; this is by too large quantities of blood passing to the brain. It is supposed by some to be dropsy of the brain, but this is not the fact. Cure—Doubtful in all cases. Treatment for the dumb horse: Bleed and physic, give regular exercise. keep in a cool stable, reduce his flesh by taking strong feed from him, and give him fodder and blades of corn; for the dumb horse, give him one half ounce of tincture of assafœtida every day for one week, and then tie the gum, open the bits and wear it on them all the time; the same is proper in all forms of this disease. Horses in Southern States are subject to this disease; they call it sunstroke. It is wrong to keep horses in hot cellar stables without their being well ventilated. The stable should be kept clean and lime applied upon the floor every twelve days. The ammonia rising from the filthy stable is bad for this and all other diseases.

To Cure any Stage of Founder.

Bleed in the plate vein between the wart and knee on the inside of the fore leg, after which produce a

counter irritation as recommended for sweeny, and then make an incision at the lower part of the shoulder blade and force a catheter or goose quill in and blow it full of air and force it down to the hoof, after which have the toe of the foot cut down until it bleeds, but have none cut off the heel. Shoe the horse with a spring heel shoe.

Hoof Ointment

Take rosin four ounces, beeswax six ounces, lard one pound, melt together, pour it into a pot with three ounces turpentine, two ounces verdigris, and one pound tallow; stir it until it gets cool. This is one of the best medicines for the hoof ever used. Follow directions.

Distemper.

Symptoms—Swelling under the jaws and inability to swallow. To cure—Bleed two gallons and physic; then, if a tumor is found under the jaws, open it; if not, apply the general liniment to the swelling, or white ointment; make it break on the outside if possible, then give of the cleansing powder for ten or twelve days in mashes. Turn him out if you can get pasture.

Sore Mouth or Tongue.

Symptoms—The mouth runs water, the horse scoods or throws his hay out of his mouth. The cause of this is often from frosty bits being put into his mouth, or by eating poisonous weeds. To cure—Take three drachms borax, two drachms sugar of lead, one-half ounce alum, one pint vinegar, one pint sage tea; shake all well together, and wash the mouth every morning. Give no hay for twelve days.

Mange and Surfeit.

Caused by running out in wet weather, over driving, and poor cleaning. Symptoms—The horse rubs, and is itchy all over, broken out in scabs. To cure—bleed and physic, then take one-half pound sulphur, one pound lard, mix well, grease the parts affected every three or four days, stand the horse in the sun

until all dries in, and give him a few doses of the cleansing powder.

Founder in First Stage.

Symptoms—The horse is stiff, his feet hot, and often trembles; very thirsty. **To cure**—Bleed from the plate veins until it stops itself, or until he falls, then give the following: one-half ounce aloes, four drachms gamboge, one-half ounce oil sassafras, make this into a pill, and give him all the sassafras tea he will drink, turn up his feet and fill them full of boiling hot lard, bathe his legs in hot water and rub them well. This always cures in forty-eight hours.

Fresh Wounds.

First stop the blood by tying the arteries, or by applying the following wash: four grains nitrate silver, one ounce soft water; wet the wound with this, and then draw the edges together by stitches one inch apart, then wash clean, and, if any swelling in twenty-four hours, bleed and apply the blue ointment, or any of the liniments spoken of. Keep the bowels open.

Diseases of Liver or Yellow Water.

Symptoms—The eyes run and turn yellow, the bars of the mouth the same, the hair and mane get loose, and he often gets lame in the right shoulder, and very costive. **To cure**—Give the following ball every morning until it operates on the bowels: seven drachms aloes, one drachm calomel, four drachms ginger, molasses enough to make it into a ball, wrap it in paper and give it; give scalded bran and oats—grass if it can be had. When his bowels have moved, stop the physic and give him one ounce of spirits of camphor in a pint of water every morning for twelve days, rowel in the breast and give a few doses of cleansing powder. Turn him out.

Physic Ball.

One-half ounce aloes, four drachms gamboge, twenty drops oil juniper; make into a pill with a few drops

of molasses, wrap it in thin paper and grease it, draw out the tongue with the left hand, place a gag in the mouth, and run the pill back with the right hand until it drops off; let the head down and give a sup of water. First prepare the horse by giving one or two mashes.

Diseases of the Kidneys.

Caused by feeding dirty and musty grain. To cure—Blister over the kidneys and give the following pills every day: one ounce juniper berries ground fine, two ounces flour, make into a stiff paste, divide into seven pills, give one every night; then use the cleansing powder every day. If the horse has trouble to get up when he lays down, swing him up for two weeks; give no food but that which is clean; this is half the cure. Do not work or ride him.

For Rheumatism.

Take one-half pint alcohol, one-half ounce oil organum, one-half ounce gum myrrh, one teaspoonful lobelia, and let all stand over night; then bathe the part affected. This is the best medicine I ever saw. I paid five dollars for the receipt.

Black Liniment.

This is good to apply to poll evil—fistula. Take of linseed oil one-half pint, tincture of iodine four ounces, turpentine four ounces, oil organum one ounce; shake and apply it every day; rub it in well with your hand; wash the part clean with soap and water before applying it. Good on any swelling.

Crogy Knees.

The cause of this is sprains or over driving, or by having long high toes and no heels on the shoes. This can be cured in the first stages, but if of long standing there is no cure. To cure—Have shoes made thin at the toe and high at the heel. Take one-half pint linseed oil, four ounces alcohol, one ounce spirits camphor, two ounces laudanum; shake and apply to back part of legs; rub it in well every four

days; still increase the thickness of the shoe at the toe.

Secret for Subduing the Horse.

Take oil of rhodium and oil of cummin, of each equal parts, mix and wet a sponge with it, and approach the horse and squeeze some of it on his tongue, and the horse is your servant, and you can do with him as you wish.

Greasy Heels or Chronic Scratches.

Take three quarts strong lye, four ounces white oak bark, one-half ounce sulphate of zinc, one-half ounce blue vitriol, two handfuls of laurel leaves, one ounce sugar of lead, one handful of common salt, boil all together for thirty minutes; it is then fit for use. Apply twice a day till cured.

Colic.

Symptoms—The horse lays down and gets up often, and looks at his flanks. His ears and legs are cold. The cause of this is cold water and change of food, and an over quantity of acid in the stomach. To cure—Take one-half ounce laudanum, one ounce sulphur ether, one pint milk-warm water; drench, and if not better in forty or fifty minutes, bleed and repeat the drench. Don't move the horse while sick.

How to Fatten the Poorest Horse.

Take three drachms nitric acid, two ounces salaratus, three ounces saltpeter, three ounces black antimony, three ounces assafoetida; mix and give one tablespoonful in every mess. This will fatten the poorest horse that lives in two weeks.

How to Make Blue Ointment.

Take four ounces ointment of rosin, one-half ounce finely ground verdigris, two ounces turpentine, two pounds mutton tallow, one-half ounce oil origanum, one-half ounce tincture iodine; mix all well. This is one of the best medicines that can be made for scratches, hoof evil, and cuts, and is good to apply on fistula after the rowels are taken out.

Inflammation of the Bowels.

Cause—Large quantities of water when overheated; sudden change from warm to cold atmosphere; plunging the horse when hot into cold water; high fed horses are most subject to this disease. **Remedies**—Bleed one-half gallon from the neck, and give the following: two pints gruel, one ounce prepared chalk, four ounces catechu, three scruples opium. The above should be repeated every six hours until the purging ceases. The horse must be kept clothed and well rubbed. If there is much tenderness in the bowels, by the pressure of the hands, it will be proper to apply the liquid blisters over the bowels.

How to Make White Ointment.

For rheumatism, sprains, burns, swellings, bruises, or inflammation of man or beast, chapped hands or lips, black eyes, or any kind of bruises. Take two pounds fresh butter, one ounce tincture iodine, two ounces oil origanum; mix this well for fifteen minutes and it is fit for use. Apply it every night; rub it in well with the hands; if for the human flesh, lay on warm flannel.

Big or Milk Leg.

This is brought on by a hurt, a want of action in the absorbent system; it is dropsy of the muscle of the leg. To cure—Apply the liquid blister every three or four hours until it blisters; then in six hours grease it with soft oil of any kind; then in eight days wash the part clean and apply it again; repeat it three or four times, then use the iodine ointment. If this does not remove it all, apply the spavin medicine; this will remove it.

Broken Knees.

This is caused by the horse falling on his knees. First cleanse the part of all gravel and dirt, then wash it. Take two gills alcohol, one-half ounce arnica, tie the knees up in coarse linen, and if they swell in twenty-four hours, bleed and keep the bowels open with mashes, and then apply the blue or iodine

ointment every other day. Do not use the horse until he is perfectly well, or it may cause the knee to break out again.

Lampers.

All young horses are liable to this trouble. It is nothing but inflammation of the gums. To cure—Bleed or scarify the gums, but never burn, for it spoils the teeth and adds to the cause of the disease. Give the bran mash, rub the gums with salt, and use the cleansing powders.

Liquid Blister.

Take one-half pint alcohol, one-half pint turpentine, four ounces aqua ammonia, one ounce oil organum; apply this as spoken of every three hours until it blisters. Do not repeat oftener than once in eight days, or seven at least, or it will kill the hair.

How to Cure Corns.

Take off the shoe, cut out the corns, and drop in a few drops of muriatic acid; then make the shoes so that they will not bear upon the parts affected. Apply the hoof liquid to the hoof, to remove the fever. This is a sure treatment. I never knew it to fail.

General Liniment.

One-half pint turpentine, one-half pint linseed oil, four ounces aqua ammonia, one ounce tincture iodine; shake it all well. This is used for different recipes, sores, swellings, sprains, etc.

Receipt for Lice on any Animal.

Take four ounces coculus indicus, and boil for thirty minutes in two quarts of vinegar; then wash or rub the animal all over where the lice or nits are and they will all be dead in one hour.

How to Make the Magic Liniment.

Two ounces oil spike, one ounce oil organum, two ounces spirits turpentine, three ounces sweet oil, two ounces spirits wine, one-half ounce tincture Spanish fly, one ounce spirits hartshorn; put in a bottle and shake, and apply to all strains, sprains and bruises.

Sprain of the Stifle.

Symptoms—The horse holds up his foot, moans when moved, swells in the stifle. This is what is called stifling. There is no such thing as this joint getting out of place. **Cure**—Foment the stifle with hot water; rub it dry; then bathe it well with the general liniment every morning and night. Give him a mash and he will be well. Never allow any stifle shoe, but fasten a strip above the hook joint of the well leg to keep the lame leg in position.

To Remove Warts.

Take one ounce nitric acid, one ounce muriatic acid, one-half stick nitrate of silver; put all into a bottle and let it stand for twenty-four hours; then cork for use. Put on twice a day till the warts disappear.

For the Heaves.

Four ounces land plaster, four ounces tartar emetic, four ounces ginger, four ounces alum, four ounces, blue vitriol, four ounces Spanish brown; mix and feed one table-spoonful once a day on chop or mash feed. Dampen all the feed the horse eats.

Contractions of Tendons of Neck.

Symptoms—The head is often drawn around to one side; again, the horse can not get his head to the ground. The cause is spraining the horse, and rheumatism produces the contraction. **Cure**—If it is taken in the first stages, bleed from the neck two gallons, then foment or bathe the part well with hot water, rub it dry and take the general liniment and apply it two or three times every day. This will cure if it is of long standing. Then blister with the liquid blister all along the part affected. Do this every three weeks until he is well, and rub with the white liniment.

Johnson's Liniment.

Take one ounce oil origanum, one-half pint alcohol, one-half ounce oil cedar, eight ounces olive oil, one-half ounce oil cloves, one-half ounce turpentine and

shake together well. This is used for almost all complaints of the muscles.

For Cleansing the Blood of the Horse.

Bleed the horse through the nostrils, after which use the following purgative: Six drachms ball of Barbadoes aloes, two drachms pulverized ginger, one drachm pulverized gentian root. Twenty-four hours after give one of the following powders twice a day in his mess: One ounce black antimony, one and one-half ounces saltpeter, two ounces flour of sulphur, mix and divide into eight powders.

For Scratches, &c.

Wash well the parts affected with a solution of castile soap suds, after which use the following: One pound white lead, one ounce castor oil, one ounce pulverized alum, mix well and apply upon the parts affected.

To Temper Mill and Other Kinds of Picks.

Corrosive sublimate, prussiate of potash, salamoniac, alum and saltpeter, of each two ounces, put all in two gallons of water until dissolved, then heat your steel to a cherry red as far up as you wish it hardened and then plunge it in; draw no temper, let it lay until cold and it will be hard and tough.

How to Make a Horse Blind.

Take common flaxseed and chew it fine in your mouth; then blow your breath in the eye two or three times, and in ten minutes there will be a white scum over it. To cure it take a silk handkerchief, wrap it around your fingers, dip it in fresh water, draw it over the eye and part the scum, and it will go off in ten minutes.

To Make a Horse Appear as if Glandered.

Take six ounces unsalted butter, one ounce tincture assafœtida, mix and put the half in each ear at night, and the next morning he will run and smell worse than any glandered horse you ever saw. It will cure itself soon if left alone.

Hoof Ail in Sheep.

Muriatic acid and butter of antimony, of each two ounces, one ounce pulverized white vitriol, mix, lift up the foot and drop a little upon the hoof twice a week. It kills the old hoof and a new one soon grows.

Bots.

The bot has been a mystery, until late years, with the best men that ever wrote upon the horse. I am asked almost daily, by horsemen or farmers, "Is a colt foaled with bots; or is it necessary for a horse to have bots?" Certainly it is necessary for a horse to have bots; and he could not live very long without them; they are a part of the horse. They aid and assist the digestion of the food in the stomach. A colt is foaled with a certain quantity of red bots, which adhere to the coating of the stomach, and are natural for a horse to have to preserve health. They never let go to take hold of any strong poisonous or sweet medicine you may pour down his throat. They live upon the gastric juice and mucous of the stomach, and are a substitute for the gall-bladder upon a horse's liver, a horse having no gall-bladder upon his liver as other animals have. But a horse has a gall duct through the center of his liver, which serves to convey the gall bile to the intestines to assist the digestion of the food.

But there is another bot which originates from a species of gadfly that you see in the fall of the year busily engaged depositing their nits upon the legs, shoulders and under jaws of the horse. While rubbing their jaws about the trough, or rubbing their legs with their teeth, they get those nits in their mouth and among their food, and they are conveyed with the food to the stomach and there hatched out, and adhere to the inner coating of the stomach. This is a yellow bot which forms the internal army which is always contriving a plan to destroy the horse.

Yellow bots will certainly kill a horse in three ways: the horse will get an over quantity of them,

and they will get up in the cardiac orifice, produce a stoppage, and choke the horse to death; then again they will get down in the pyloric orifice, produce a stoppage, and the horse is perhaps taken with flatulent colic, and they kill him in that way; then again they may perforate the stomach, and kill him in that way. But they have always got something to contend with before they will injure the animal. A sound horse was never injured by a bot as long as he eats his food regularly three times a day. His stomach is sweet and his whole system in good order; they have then plenty of food to live upon without injuring the horse.

But the horse has the smallest stomach of any animal of his size living, consequently the food is not long retained in the stomach, but is converted into chyle, passes through the pyloric orifice, and enters the duodenum; there it receives the secretion of the excretory duct of the pancreas, the gall-bile from the liver, and is converted into chyle, passes off into the large and small intestines, and is principally digested there. Therefore, if you hitch up your horse in the morning and work him hard all day long, and omit feeding him at noon (when he is regularly accustomed to having his food three times a day,) or in the afternoon, or towards evening, his stomach becomes very empty, and those bots are liable to let go at any moment and go to work upon the inner coating of the stomach.

Then again there may be some disease approaching or gnawing upon the animal's system; he loses his appetite and eats but little; you begin to wonder what is the matter with your horse. Just as soon as he loses his appetite, his stomach becomes sour, and then we call it a diseased stomach, and the bots are again liable to let go at any moment and go to work upon the coating of the stomach. Just as soon as the disease threatens the life of the horse, it also threatens the life of the bot, and they will try to

make their escape out of the stomach as best they can. You may take Youatt with Prof. Spooner's notes, Dr. Bracken's, Bartlett's, Magee's or Stewart's works, and they are all wild upon the bot; they will tell you that a bot never perforated, or in other words eat through a horse's stomach whilst he lived, and they thus show that they know nothing about it, for while practicing in the army and while traveling through the States, I have seen horses that died with bots that had eaten entirely through the stomach and its contents also, within ten minutes after the death of the horse; and this goes to show that they will certainly eat through the stomach while he lives.

Now we have tried almost all the strong and poisonous medicines imaginable to kill the bot, such as nitric acid, sulphuric acid, muriatic acid, strong elixir vitriol, a strong decoction of pink root, strychnine, arsenic, turpentine, alcohol, and all those medicines commonly fatal to vermin, and they will actually live in any of those medicines from one to twenty-four hours, which goes to show that you may pour all the strong medicine you please down a horse and you will kill the horse instead of the bots.

But we have a vegetable that nearly every farmer grows upon his farm every year, the juice of which will kill a bot in ten seconds, where nitric acid would not kill them in twenty-four hours; not because it is strong or because it is poisonous, but it is a well known fact that when farmers or stock owners get sick horses, they will send off for the best horse doctor (so called,) that they have in the country. He comes and examines the animal; he is perhaps not thoroughly posted in anatomy and physiology, or the different symptoms of the different diseases that the horse is subject to, and he is unable to tell what is the matter with the patient; but he knows enough to know that there is something wrong, and about the first thing he will tell you is that your horse has the bots. Certainly he has bots, but the question is,

are the bots afflicting the horse at the time? I will teach any boy fourteen years old, who may enter my class, so that he can always tell when the bots are at their destructive work. But this man may tell you that your horse has the bots and he is going to kill them, and he will drench him with strong dose after strong dose of medicine; and still the horse is perhaps getting worse all the time.

When he has given him all he knows, some one else in the crowd knows of a cure and they will give him that; and still they have no relief. Perhaps some one else will say, "That horse acts just as my horse did some time ago, and we gave him so and so and it cured him;" and they will give him that. After a while they will have ten or a dozen strong doses of medicine poured down his throat, and make, as it were, a drug store out of his stomach; and eventually the medicine kills the horse instead of the disease. Hundreds and thousands of horses are killed yearly by over doses of strong medicine, administered by men that don't understand the properties of medicine, or don't understand their business. Whether it be a veterinary surgeon or a physician who administers a dose of medicine to his patient, he should be able to tell what effect it will produce upon the patient, or he should not administer the medicine. Now I can give you several prescriptions that will afford temporary relief from the bots, when you find your horse is plagued with them. If you will bleed him in the mouth, or take one quart of blood from the neck vein, and give as a drench, some times that will give relief; then again you can give him sweet milk and molasses; half an hour after you will give strong boiled sage tea or alum water; half an hour after give him a physic; the milk and molasses will cause the bots to let go, the sage tea or alum water will shrivel them up; they will lay in a dead or dormant state and the physic will carry them off.

Then again you can turn up his upper lip, rub it with spirits of turpentine, rub his breast and chest with turpentine and you may relieve him through or by any of those operations in from fifteen to twenty-five minutes; but it is only a temporary relief; those bots still remain in the stomach to take hold at any time that there is a disease gnawing at the vitals of the stomach or that his stomach is empty. But the beauty of the vegetable juice is that you have it in your house the year around; when you find that the bots are working upon your horse, go and get one quart of the juice and give it as a drench, and as soon as it gets to the stomach the bots will let go and suck themselves as full as ticks and the gas that is in the vegetable juice will actually burst them in the stomach. That is the only medicine which we have found, in all the experiments that we have ever tried, that will kill the bots in a horse's stomach without injury to the horse. Next day you will see them pass off with the evacuation of the bowels, not the bot, but the outside skin or shell of the bot; then your horse will not be troubled with them again until the next season, when those gad-flies will come back and deposit their nits in the same places above stated; they are again taken with the food into the stomach, hatch out and remain there until the next summer; then their time has come, they will let go their hold, pass off with the evacuation of the bowels, get in the earth or manure piles, go through some kind of a transformation similar to a silk worm; there they lay in a dead or dormant state from three to five weeks, then they burst their horny shells like a locust and come out in that same gad-fly again, and deposit their nits in the same places as above stated. Thus those unnecessary yellow bots that destroy so many valuable horses, originate from generation to generation. You can prevent those bots by rubbing the nits in the fall of the year with spirits of turpentine two or three times—it kills them

and they drop off. If you will shove them off in the palm of your hand, spit upon them, and put the palms of your hands together for two minutes, you will have them hatched. If you will take a live bot from the stomach of a horse that has died or been killed and put him in a phial, put a cork in, giving him a little air by cutting a bit out of the cork, then tie a string to the phial and hang it in a warm room, and in twelve or fifteen days it will come out a perfect gad-fly and creep around in the phial; in that way you can all see where they originate from.

The True Symptoms of the Bot.

When the horse is taken with the bots while in the team, you will frequently see him paw, first with one foot and then with the other, whisk his tail down between his legs, and exhibit other signs of distress, continually shifting from one position to another. If you unhitch him he will lie down, roll over and over, sometimes lying on his side and putting the muscle of his nose around to his side and give signs of pain, and frequently he will turn up his upper lip. If you will examine his mouth you will find the true representation of the mouth of a bot; you will find little pimples upon the inner surface of the lip, which, in a sound horse, or in any other disease, are perfectly white, but when the horse is plagued with bots they will turn to a purplish red and become enlarged. By those symptoms you will know that it is bots. To cure—Take one quart of the vegetable juice above mentioned, which is common potato juice, obtained by grating them fine or mashing them as best you can, pressing out the juice with which to drench the horse. This will cure any case in twenty-five minutes, unless they have eaten entirely through the stomach.

Poll Evil.

Among all the evils in this world, the poll evil is the greatest. It is brought on by a bruise or stroke of some kind, which produces fever or inflammation of

the muscles of the poll of the neck; in first stages you will find an enlargement sometimes on one side and sometimes on both sides of the neck, with fever or inflammation. In its first stages, all that is necessary is to bathe the enlargement twice a day, with any of the liniments that you find in this work, and in a few days you will scatter the swelling and draw all the inflammation out, and your horse will be cured, but if you neglect and let it run on too long, there will eventually grow roots and core or pips in the enlargement. It has been considered by the best authors, until late years, to be incurable without stiffening his neck, because they would put strong or poisonous medicine in the orifice or tumor upon the neck, such as corrosive sublimate. Arsenic or acids eat down and injure the ligaments of the joint, and the result was a stiff neck; but we have tried experiments upon that disease until we have now got a cure that will never fail in that disease. We first secure the horse against danger to ourselves by putting a twitch upon his upper lip and strapping up one fore leg; then we take a six inch seaton needle, thread it with a tape one half inch wide, then we run a seaton through from the bottom of the enlargement to the top, draw the tape through and tie it, then make the following lotion: take muriate of ammonia 2 ounces, spirits of turpentine 6 oz., 4 ounces linseed oil, 1 ounce oil of tar, 1 ounce corrosive sublimate, 1 ounce oil origanum, tincture of iodine 1 ounce, 1 ounce croton oil; shake all well together and anoint the tapes twice a day and draw them through back and forth every time you apply the medicine, and so keep on as long as it runs a thick yellow matter; but as soon as it runs a thin bloody matter and the enlargement is all gone down, then you will cut the tape, draw it out and keep the parts washed clean with castile soap and warm water and use the magic liniment until it is all healed over, and your horse will be cured sound without spot or blemish and without a stiff

neck. Keep the parts washed clean every day or two while using the medicine, which will hasten the cure and keep the hair from dropping out ; also, use the cleansing powder as directed in the receipt, to cleanse his blood and system thoroughly.

Fistula.

This disease is one and the same as Poll Evil, only a different location gives it a different name. What will cure one will cure the other ; follow strictly the directions of the Poll Evil receipt and you will never fail to cure the Fistula, unless it has passed down between the shoulder blade and the ribs, then it is too deeply seated to apply any medicine to the seat of the disease ; consequently it is then incurable and your horse would be well sold at five dollars.

Catarrh, Cold or Chronic Cough.

This disease is brought on through a neglect of distemper, taking cold while over-heated, or taking cold while having the distemper. The seat of this disease is in the larynx and works the same upon the horse as the laryngitis does upon a person. If you let it run on it will terminate in nasal gleet, strangles, glanders or the heaves. The air passage is partially closed by phlegm, inflammation or swelling, and you will observe that his throat is very sore and tender ; he will have a very bad cough—many times a rattling noise in his throat and nostrils ; sometimes a discharge or running at his nose, sometimes a heaving at his flanks. By the inexperienced, this is oftentimes called heaves. Now this kind of heaves are curable. For this disease, we will use the American horse, cattle and hog powders, a receipt for which you will find in this work. Feed as directed in the receipt and in ten or twelve days it will stop all cough ; it will cleanse the air vesicles, tubes or cells from the lobes of the lungs to the pharynx, and cure him sound. Feed it to a horse that has a loss of appetite—it will sweeten his stomach, give him a good appetite and cleanse his blood and system thoroughly. Feed it to a horse that

has got the distemper and you will hardly notice that he has got the disease, and after he is over the disease he is the same horse that he was before you have cleansed his blood and system thoroughly. He has no bad cough left or any discharge from his nostrils. Feed it to a horse that has an unnecessary amount of worms. The symptoms of worms are—he stands and rubs his tail, tucked up belly, staring coat, hide-bound, looks dull and mopish out of his eyes, eats generally plenty, but hardly ever thrives, the one half of the food that you give that horse, goes to nourish those worms and the other half goes to nourish the body and system of the animal; consequently only one-half of the feed does the horse any good. For worms we feed the powders above named, as directed and in a few day you will see them pass off with the evacuations of the bowels, and in a few days they will all pass off. Now in any of those diseases mentioned you will find an entire difference inside of ten days after you feed the powders; don't be afraid to feed them to your mares in foal or your best horses, for there is no pampering medicine in them. The same powders are also the best preparation ever put up, for cattle, when they are out of fix or diseased in any way; such as hollow horn, wolf in the tail, loss of appetite, or a debilitated system from any cause; also, the best powders that have ever been used to keep off hog cholera, or to cure if taken in time; they are also good for sheep and poultry.

The Anatomy or Osseous Structure of the Horse.

ANATOMY explains, if taken in its widest sense, the nature, office, and structure of every part of an animal. Animal anatomy has been appropriately divided, by writers, into three grand divisions, the *osseous*, the *muscular*, and the *nervous* structure of animals. The *osseous* is that which we shall now treat of:

All *quadrupeds* are formed of an earthly base, called bone; and the assemblage of bony parts, is called a *skeleton*. Bones are composed of earth and lime,

held together by means of *gelatin*, a kind of glue, secreted by appropriate vessels. Bones are covered by a thin skin, called the *periosteum*, which bears the same relation to the bone as the skin to the body, serving as a covering for its surface, and a sheath for the different cavities which enter it.

Bones are all of them, except very flat ones, more or less hollow; within their caverns an oily fluid is secreted, called marrow or *medulla*, which serves for their support, and that of the constitution generally. Bones have nerves, blood vessels and absorbents. Bones are capable of reproduction. They are connected by *articulation*, which, when moveable, is termed a *joint*. In some cases, as in the skull, bones *articulate* by *indentation* of the parts, this union is termed a *suture*. Bones may be classed in the following manner :

1. *Cylindrical bones*, as in the fore-arms.
2. *Flat*—as in the shoulder-blades.
3. *Irregular*,—as the ribs and bones of the skull.

They are further divided into :

1. *Hollow bones*, possessing marrow.
2. *Flat*—nearly destitute of marrow, if not altogether.

A *skeleton* is an assemblage of the *osseous*, or bony parts of an animal, and is usually divided, when treated of, into:

- I.—*The head*.
- II.—*The trunk*.
- III.—*The extremities*.

FIRST DIVISION.—There are, by counting the ten facial pairs as twenty bones, seventy-one bones entering into the composition of the head of the horse, including forty teeth, the usual number of a horse. The mare has usually four less than the horse. The tushes are wanting.

The head may be divided into two parts, the *cranium* or skull, and the face.

The bones which compose the *cranium*, and which contain and protect the brain, are nine in number. These nine bones are separate in the foal, at an early period of its existence, but soon after birth, they are united by what anatomists call *sutures*, a kind of dove-

tail union, as a cabinet maker would express himself. This *suture* union becomes so firm, that a fracture will occur in any other part more readily than over a suture.

Number and Names of the Bones of the Cranium.

The occipital bone, technically called—OS OCCIPITIS.

Two frontal bones—OSSA FRONTIS.

Two parietal bones—OSSA PARIETALIA.

Two temporal bones—OSSA TEMPORUM.

The sphenoid bone—OS SPHENOIDES.

The ethmoid bone—OS ETHMOIDES.

DESCRIPTION OF THE BONES OF THE CRANIUM. — *The occipital bone* is, of all the cranial bones, the largest, thickest, and most compact, and in the colt, is composed of several pieces which unite by age. It is at the upper, and back part of the head, and articulates with the first *cervical* or neck vertebral, called the *atlas*. At its posterior surface it is perforated by a large hole, which gives passage to the spinal marrow.

The *frontal bones* constitute the forehead, and behind them is lodged the anterior and inferior portion of the brain. A division of their bony surfaces forms two cavities, called the *frontal sinuses*, which are lined by the nasal membrane throughout. These bones are united by a suture called *sagittal suture*.

The *parietalia*, or wall bones, lie on each side of the head, to which the posterior or lower jaw articulates.

The two *temporals*, divided into a squamous and petrous portion, within which is situated the internal ear.

The *sphenoid* bone, in form, writers have generally compared it with a bat—is hollow and irregular, and with the *ethmoides*, serves to intersect and attach the others; and also, to assist by their cavities in extending the *pituitary*, or smelling membrane. It is called *ethmoides*, or sieve-like, because it is perforated with many holes. Through the numerous orifices,

fine threads of nerves—the *olfactories*—pass into the nasal cavities, to constitute the sense of smell.

The bones of the face, or *facial bones*, are *ten pairs* and two single bones.

Number and Names of the Bones of the Face.

Nasal pair, technically called—*OSSA NASI*.

Two angular—*OSSA LACHRYMALIA*.

Two jugal—*OSSA MALARUM*.

Superior maxillary—*OSSA MAXILLARIA SUPERIORIA*.

Superior palatines—*OSSA PALATINA SUPERIORIA*.

Inferior palatines—*OSSA PALATINA INFERIORIA*.

The pterygoides—*OSSA PTERYGODA*.

The anterior turbinated—*OSSA TURBINATA ANTERIORIA*.

The posterior turbinated—*OSSA TURBINATA POSTERIORIA*.

Vomer bone—*OS VOMER*.

Posterior maxillary—*OS MAXILLARE INFERIUS*.

The hyoid bone—*OS HYOIDES*.

Intermaxillary bones—THESE ARE WANTING IN MAN.

DESCRIPTION OF THE BONES OF THE FACE.—The *nasal bones* are slender pieces, meeting in the middle, which thus enable the horse to resist hard blows—within their union, they hold the *septum narium*, or cartilaginous plate—the *vomer*, which separates one nostril from another. The bones also greatly assist to extend the surface of the smelling organ. The *fossa* or cavities within these bones, are the principal seat of glanders, one of the most formidable diseases to which the horse is subject.

The *two angular bones*, or *ossa lachrymalia* form a considerable portion of the orbits of the eyes, and are of the size of a shilling, or rather larger, having a groove to conduct the tears into the nose.

The *two jugal*, malar or cheek bones, occupy also a portion of the orbits. The *superior maxillary*, or upper jaw bones, are the largest of the facial bones, and contain all the upper molar teeth, or grinders. The *inferior*, or *intermaxillary bones* are wanting in man,

in whom the face is short—these bones concur with the *superior maxillary* in forming the *alveoli* or sockets, in which the teeth are deeply and firmly fixed.

The *superior palatines*, the *inferior palatines*, the *pterygoids*, the two anterior and the two posterior turbinated bones, with the vomer, make up the remaining facial bones, with the exception of the posterior maxillary, which, on its anterior edge, is pierced to lodge the teeth. At the upper part it extends into two angular branches, each of which ends in two processes and an intermediate groove. This bone, throughout, shows the most admirable mechanism; the molar or grinding teeth, on which most is dependent, and whose exertions are the greatest, are placed near the centre of motion—and as the upper jaw, in most animals, is fixed, or nearly so, it was necessary that the lower should have considerable extent of motion, for the purpose of grinding; and it is accordingly so formed as to admit of motion in every direction.

The *os hyoides*—shaped much like the capital U—is a bone situated within the head, at the root of the tongue, to which it serves as a support, and for the attachment of the muscles.

The teeth of the horse are the hardest and most compact bones of the body, of all animals. There are usually forty of them in the horse, and there are thirty-six in the mare. In the latter the tushes are usually wanting.

DIVISION, NAMES AND NUMBER OF TEETH.—They are usually divided into three classes, viz :

1. Nippers—*Incisores*, twelve of them.
2. Tushes—*Cuspidati*, four.
3. Grinders—*Molares*, twenty-four—which numbers are equally divided between the two jaws.

SECOND DIVISION OR BONES OF THE TRUNK.—The trunk of the skeleton consist of the spine, the pelvis, and the chest or thorax, composed of the ribs and sternum.

The bony column, called the spine, consist of fifty bones, including fourteen tail-bones, viz :

Seven neck, or cervical.

Eighteen back, or dorsal.

Six loin, or lumbar.

Five rump, or sacral vertebræ, with the addition of thirteen or fourteen small tail-bones, called caudal vertebræ.

The pelvis or basin consists of five bones, viz:

The lower spinal bone, called os sacrum.

Two broad hip bones—ossa innominata.

The two lowest points of the spinal bone—ossa coccygis.

The thorax or chest consists of thirty-seven bones, viz:

The breast bone, called sternum.

Thirty-six ribs—costæ.

It is on this bony column, or the spine, that the horse is to carry the burden or weight placed on him, and there are two principal things to be considered: easiness of carriage and strength. If the spine were to be composed of unyielding materials, if it resembled a bar of wood, the jar or jolting of the animal could not possibly be endured. To avoid this, the back is so constructed as to meet the end for which the horse was made — the spine is both flexible, and the parts well united with peculiar firmness to afford strength to the animal.

The neck, or cervical vertebræ, called by farriers and butchers the “rack bones,” seven in number, and differ somewhat in figure; especially do the first and second, and present some peculiarities. The first is the only one to which the great suspensory ligament of the neck does not attach itself, which would have interfered with that freedom of motion which is so graceful in this noble animal. It articulates with the second by receiving its tubercular process within it, and from which process the second of these bones has been called dentata, or tooth-like bones. The first bone of the neck is called the atlas, so named from supporting the head; as Atlas, the philosopher, was

supposed (fabulously) to support the world. Between these two neck bones, the atlas and dentata, is situated apart, where the spinal marrow is exposed from any bony covering, at which part butchers plunge a pointed knife into what they call the pith of the neck, when they want to kill an animal instantaneously, and without effusion of blood; whence it is called pithing. The remaining five cervical vertebræ resemble each other.

The back bones, or dorsal vertebræ, are nearly alike in structure, except in the length of the spinous process of the first seven or eight. It is owing to these elongated spines that we owe the height of the withers; and as the intention of these parts seems principally to serve as levers for the muscles of the back inserted into them, so we can readily understand why their increased or diminished height is favorable or unfavorable to moving. These, like the former, articulate with each other by processes, as well as by the anterior and posterior surfaces of their bodies; between each of which is an intervening substance, exceedingly elastic, semi-cartilaginous in its structure, convex on both sides, thicker in the centre than at the edges, which is analagous to a small cushion, thus permitting an easy motion of spine, from its peculiar form and compressibility.

The six loin or lumbar vertebræ, differ from the dorsal in being larger, and having very long transverse processes to make up for the deficiency of the ribs in the loin. These bones often unite by the pressure of heavy weights, and spontaneously by age, and thus we need not be surprised at the stiffness with which some old horses rise up. The union of the back and the loins should be carefully remarked. There is sometimes a depression between them; a kind of a line is drawn across which shows imperfection in the construction of the spine, and may be regarded as a sure sign of weakness.

The five rump, or sacral vertebræ, are united into

one to give strength to the column, and to serve as a fixed support to the pelvis, or the hinder and lower part of the abdomen, in which the bladder and rectum are contained, or basin, with which it is interwedge. From this compact and firm union, it will appear how admirably this spiral column is adopted to its important functions of serving as a flexible but powerful support to the machine; and how by the formation of a large foramen or opening within the substance of each vertebræ, a bony canal is offered for the safeguard of the spinal marrow, from which, through lateral openings in the vertebræ, the spinal nerves ramify, or are given off in pairs.

The pelvis or basin supported by this osseous column, is composed of the os sacrum, ossa innominata and ossa coccygis. The ossa innominata in the foetal colt before birth, are each composed of the ilium, the ischium, and the pubis, all traces of which divisions are lost before birth. The ilium is the most considerable, and forms the haunches by a large unequal protuberance, which, when prominent, occasions the horse to be called hipped. The next largest bone is the ischium, or hip bone, on each side. The pubis, or share-bone, is the least of the three; in conjunction with the schium, forms the acetabulum, or cup-like cavity, in which the head of the thigh bone lodges. The pelvis, as above remarked, is supported by the sacral vertebræ, and attached to the sacrum, by ligaments of prodigious strength; but has no bony union, by which means, as in the fore extremities, some play is given, and the jar of pure bony connection is avoided.

The two extreme sacral vertebræ are termed ossa coccygis. The elongation of the spine, or caudal vertebræ, are generally about fifteen. These are sometimes called twirl bones, from the convoluntary motion afforded the animal in switching flies and other insects.

The throax, or chest, which contains the heart and

lungs, comprises the sternum or breast bone. The sternum of the horse is inclined, like the keel of a ship, to which the ribs are attached by strong ties. The costæ or ribs are usually eighteen, in a few instances nineteen or twenty, to each side: eight articulate with the sternum, and are called true ribs, while the remaining ten, uniting together by intervening cartilages, are called false ribs. The centrals are the longest, those anterior and posterior are shortest. The first is placed perpendicularly, the second less so; and their obliquity, as well as dimensions, increase as they advance, so as to enlarge the chest to an almost circular form, which is the most desirable; but when they are less arched, the belly partakes of the defect, and a flat sided one is commonly a bad carcass'd horse.

THE THIRD DIVISION, OR BONES OF THE EXTREMITIES.—In the bones of the extremities there is such peculiar adaptedness, displaying a mechanism, as ought to excite admiration. Of a truth, we are led to exclaim, this animal is “wonderfully made.”

Names of the Bones of the Anterior Extremities.

The two shoulder-blades—*OSSA SCAPULÆ*.

Two arm-bones—*OSSA RADII* and *OSSA ULNÆ*, forming the humerus.

Two wrists—*OSSA CARPI*.

Two calons, or shanks—*OSSA METACARPI*.

Four splint bones—*OSSA ADDITAMENTA*.

Pasterns—*OSSA TALI*.

Four sesamoids—*OSSA SESAMOIDES*.

Lesser pasterns—*OSSA CORONIS*.

Coffin-bones—*OSSA TRIAGII*, or *ASTRAGULI*.

Shuttle-bones—*OSSA NAVICULARE*.

Names of the Bones of the Posterior Extremities.

The upper thigh bones, called *OSSA FEMORIS*.

Stifle bones—*OSSA PATELLÆ*.

Lower thigh bones—*OSSA TIBIÆ*.

Outside bones of the leg—*OSSA FIBULÆ*.

Hock bones—*OSSA TARSII*, formed by six bones.

ANTERIOR EXTREMITIES.—The scapula or shoulder-blade, situated forward on the side of the chest, is a broad, flat, and somewhat triangular shaped bone. It does not much resemble the human scapula. Its superior surface is furnished with a considerable cartilage, by means of which its surface is greatly enlarged, without increasing much in weight. The posterior surface ends in a superficial cavity, called glenoid, or shallow cavity, which receives the head of the humerus or the arm bone. It is divided in its upper surface by its spine. The shoulder blade has neither bony nor ligamentous union, but is held in its situation by very powerful muscles. Its usual situation is to a blade perpendicular to the horizon, at an angle of thirty degrees; and it has a motion in its greatest extent of twenty degrees; hence as it does not pass beyond the perpendicular backwards, so the more oblique its natural situation is the more extensive are its motions.

The humerus, or arm bone, is so concealed by muscles as to be overlooked by a cursory observer, and hence the radius or next bone below, is usually called the arm. It extends from what is called the point of the shoulder, out which, in fact, is a protuberance of its own elbow, forming an angle with the scapula, and extending obliquely backwards as that does forwards. Near its upper extremity it sends off a very powerful head to articulate with the shoulder-blade. The motions of the humerus are necessarily confined to a removal from its inclined point backward to the perpendicular line of the body.

THE RADIUS AND ULNA OR FORE-ARM.—The fore-arm, is strictly speaking, composed of the radius and an appendage, the ulna united to it. The ulna is a distinct bone, but as the leg of a horse requires a rotary motion, it was unnecessary to be a distinct bone in him. We here, however, remark, that in the colt the ulna is really distinct; and in the adult horse unites with the radius, and serves as an attachment

to muscles. On the slightest inspection of the skeleton, it will appear how much the motions of the fore-leg must depend on the length and obliquity of this part of the bone or process, which acting on the principle of a lever in the extension of the arm, must necessarily, as it is either long or short, make all the difference between a long and a short purchase in its mechanical power. The breadth of the arm, as it is called, at this part, will, from this reasoning, be seen to be very important. A full and swelling fore-arm, all agree, is the characteristic of every thorough-bred horse, and for speed and continuance is unequalled.

The carpus, or wrist, called the knee, is composed of seven bones, whose principal uses appear to be to extend the surface of attachment of ligaments and tendons, and by their interruptions to lessen the shocks of moving or of progression. The carpal or wrist bones articulate with each other, and have one investing capsular, or chest-like ligament, by which means the smallest wound of the knee that penetrates this ligament, has the effect of opening the whole joint; hence the quantity of synovia or joint oil, which escapes in these cases, and, hence also the dangerous consequences which ensue.

The metacarpus, shank or canon, is formed of one large meta-carpal bone and two smaller ones, called splint bones, which are united with it by strong ligamentary attachments, converted by age into a bony one. The inner splint bone is placed nearer the center of the weight of the body than the other, and from the nature of its connection with the bones of the knee, actually receives more of the weight than does the outer bone, and therefore is more liable to injury and inflammation, and the consequent displacing the bone. The inner bone receives the whole of the weight transmitted to one of the small bones of the knee. It is the only support of that bone. A portion only of one of the bones rests on the outer splint bone, and the weight is shared between it and shank.

The pasterns, or ossa tali, between the metacarpus and the hoof, constitute the extremity below the common shank, and consists of one phalange only, comprising all the mechanism and a double portion of complexity of all the phalanges in the digitated or fingered tribes. Four bones enter into its composition with two small bones, resembling an Indian bean, called sesamoides, to each fetlock; placed there, not only to act as a spring and prevent concussion, but to throw the tendon of the foot, which runs over them, farther from the center of motion. The pastern bone, or ostalis, is situated obliquely forward, and on this obliquity depends the ease and elasticity of the motion of the animal: nevertheless, when it is too long, it requires great efforts in the tendons and ligaments to preserve it in its situation; and thus long-jointed horses must be more subject to fatigue and to strains than others.

The lesser pastern, or coronary bone, receives the greater, and below expands into a considerable surface articulating with the coffin and navicular bones. The coffin bone forms the third phalange, and corresponds in shape with the hoof. It is very porous, and laterally receives two prominent cartilages. It is around the outer surface of this bone that the sensible laminae are attached; and the inferior surface receives the flexor tendon. The navicular nut, or shuttle bone, is situated at the posterior part of the coffin, and unites with that and the preceding bone.

POSTERIOR EXTREMITIES.—The posterior differ much from the anterior, not only in their superior strength, and in their different lengths and direction of the parts, but also in some degree in their uses.

In our description of the hinder extremities, we will begin with the haunch bone, which is composed of three bones, the ilium, ischium, and pubis. The first is principally concerned in the formation of the haunch. Its extended branches behind the flanks are prominent in every horse, and when they are

more than usually wide, the animal is said to be raggedhipped. A branch runs up the spine at the commencement of the sacral vertebrae, and here the haunch bones are firmly united with the bones of spine. The ischius, or hip bone, is behind and below the ilium. The pubis unites with the former two below and behind.

The femur, or thigh bone, is the largest of the body, its vast indentations and risings, almost peculiar to itself, show the great strength of the muscles inserted into it. It articulates with the acetabulum, the socket for the head of the thigh bone, or hip joint, by a strong head called a whirl bone. In this situation it is held not only by a powerful capsular ligament, and still more powerful muscles, but by an admirable contrivance resulting from a ligamentary rope, which springs immediately from the middle of its head, and is firmly fixed within the socket joint. In its natural situation it is not perpendicular as in the human femur, but inclines to an angle of about forty five degrees. This bone presents large protuberances for the attachment of very powerful muscles called trochanters, from the Greek, trochao, to run or roll. Throughout it exhibits a mechanism uniting combined qualities of speed and strength unknown to other animals. The lower end of this bone is received by its condyles, (knots of joints) into the deep depressions of the tibia, while the patella or knee-pan slides over the anterior portions of both bones.

The patella, answering to the knee-pan in the human subject, and which is commonly called the stifle, is nearly angular, and serves for the insertion of some of the strongest muscles of the thigh, which are then continued down the leg. It thus appears to act as a pulley.

The tibia, or leg bone, is usually called the thigh by horsemen. It is a bone formed of a large epiphysis, (a process attached to a bone, and not a part of

the same;) with a small attached part called the fibula, a long body and an irregular lower end, adapted to the particularities in the shape of the principal bones of the back, with which it articulates. The obliquity in the situation of this bone corresponds with that of the femur, being as oblique backwards as the former is forwards. The length of the tibia is a prominent character in all animals of speed; in this respect it corresponds with the fore-arm, and the remarks made on that apply, with even more force, to this—that length is advantageous to speed, but less to ease of motion.

The fibula forms a prominent instance, in common with splint bones, of what we remarked above, in our detail of the extremities—that many parts, whose uses did not strike the unobservant, would be found to be organs of harmony, placed in the body to prevent interruption to completing the general plan of animal organization. In this way the fibula appears but a process springing from the posterior part of the tibia, forming but the rudiments of the human bone of that name.

The tursus, or the hock of the horse, is a striking instance of the perfect mechanism displayed in the bony structure of this admired animal. It is formed by an assembly of six bones, and sometimes of seven. As the human anatomy is generally received as the standard of comparison, we must, in order to a proper consideration of the hock, consider it as the instep and the heel, and all the parts beyond it as the foot. The human tarsus makes a right angle with the tibia in standing or walking; but, in the horse, the hock makes one open angle with the tibia, and is far removed from the ground. In him, and the greater part of the upright quadrupeds, all the bones from the hock downwards are much elongated, and form a part of the upright pillar of the limb. In the horse, therefore, the point of the hock is the true point of the heel, and, as in the human figure, the

great twisted tendons of the gastrocnemii (calf or belly of the leg,) muscles are inserted into it; but the appellation of tendo Achilles would be rather forced here. A broad hock, as already observed in the exterior conformation, may be now still more plainly seen to be very important to strength and speed; for the longer the calcaneum or heel bone of the hock, the longer must be the lever that the muscles of the thigh act by; and a very slight increase or diminution in its length must make a very great difference in the power of the joint. It is by this tendon acting on this mechanism, that, when the animal has inclined the angle between the cannon and the tibia, or, in other words, when the extremities are bent under him in the gallop or trot, he is enabled to open it again.

The bones of the hock, like those of the knee, are united together by strong ligamentous fibers; and it is an inflammation of those uniting the calcaneum and cuboid bones, that the disease called a curb, is to be attributed; and to a similar inflammatory affection of the ligaments of the front hock, the spavins of the first stage are owing; in the latter stages the peritoneum and bones themselves become affected. The remainder of the bones below do not differ so essentially from the corresponding bones in the fore leg as to need a separate description.

We shall here close our remarks on the bony base of the horse, and add a few brief extracts on the appendages of the bones, and define the names of the muscular and nervous structure of animals. The limits of the work do not allow us to enter systematically into a detail of those parts. But when we treat of diseases, we shall, as the nature and case may demand, describe more fully the muscular and nervous structure with their constituents.

The appendages to the bones are cartilage and gristle, the periosteum, the marrow, the ligaments, and the synovia or joint oil.

The ligaments are compact, fibrous substances, which serve as a connecting medium between the bones. They possess great strength, and are common to every part of the body.

The synovia or joint oil is secreted from the living membrane of the joints, and affords a slippery medium that enables the bones to glide readily over each other.

Muscle is that part of the body of the horse termed flesh, to distinguish it from the skin, gristle, bone, ligament, &c. The muscles are composed of reddish fibers. All the motions of the animal are performed by means of the muscles.

Tendons are inelastic, tough, fibrous substances, of a whitish color.

The arteries are long, membranous canals. They gradually decrease in their diameter, as they proceed from the heart. They terminate in veins, and in exhalent openings, by means of which sweat is produced. The use of the arteries is to convey the blood from the heart to the different parts of the body.

The veins are vessels which return the blood of the body which has been distributed to it. They are less solid and more numerous than the arteries.

The absorbent system of the horse is composed of the lymphatics and lacteals, which are thin and transparent, having great strength and power of contractibility. Where they become very minute, they are termed capillaries.

The nervous system of the horse is composed of white medullary cords springing from the brain and spinal marrow. Their internal structure is fibrous, and they spread themselves over every part of the body. The brain is considered the seat of sensation and volition, and nerves are deemed the messengers to convey it through the system.

The glands are a numerous set of secretory bodies, composed of all the different vessels, enclosed in the membrane.

Hair is the clothing of brutes. It is a production of the skin. It varies in color, and is designed both for ornament and use.

The cuticle is placed immediately under the hair, and is a hard and insensible covering.

The cutis, or true skin, is situated immediately under the hair and cuticle. It is the general investiture of the body, possesses exquisite sensibility, and constitutes the true organ of touch. It is gelatinous, and is used in the manufacture of glue.

The cellular membrane and fat constitute considerable portions of most animals. The adipose membrane is cellular, and extends over most parts of the body. The cells communicate with each other. The fat is the unctuous juice secreted in these cells.

The brain is situated in the hollow of the skull, surrounded by two coverings, between which lies a third membrane. The brain has four ventricles or cavities, together with many prominences. The analogy between the human brain and that of the horse is very strong.

The ear of the horse, in its internal condition, differs but little from the same organ in man,

The eyes of the horse are not, like those in man, placed directly in front, but incline laterally. The eyelids are an upper and an under, moved by muscles, and forming an admirable curtain to protect the eye from extraneous matter. The globe of the eye is composed of coats, chambers and humors. The cornea, which is transparent, is formed of thin concentric plates, of different degrees of convexity in different animals. The corner is full of vessels, and in an inflamed state admits the red blood, as may be seen by the universal redness over the whole.

The pupil of the eye is the perforation that is seen, annular in human, oblong in the horse, ox and sheep, and perpendicular in the cat. It is an apperture in the membrane, termed the iris, on which the color

of the eye depends. In the horse it is usually brown, occasionally white, when the animal is said to be wall eyed.

The humors of the eye are the vitreous, the chrysaline, and the aqueous. The vitreous humor is of a jelly-like consistence, and occupies all the globe, except those parts taken up by the other humors. The chrysaline humor forms a lenticular body of moderate consistence, and is properly termed a lens. It is doubly convex. It is a diseased opacity of this body that forms a cataract. The aqueous humor is a limpid liquid that fills up the spaces not occupied by those already described.

The motions of the eye-ball are made by means of seven muscles.

The criteria of soundness in the eyes are gained by a careful examination of them, and which experience has shown to be best made by placing the horse within a stable, with his head nearly approaching the stable door, which should be fully open. Small eyes are found more prone to inflammation than large, and large goggling eyes are liable to accompany a starting horse more than lesser ones; and when the convexity is extreme, not only is the starting in proportion, but such eyes are more liable than others to become affected with the disease commonly called glass eyes, but correctly gutta serena. It is not, however, to be understood that all starters have defective eyes; many are so from natural timidity, and still more, from hard usage and bad management in breaking and handling. The eyes should be examined together, not only to observe whether each presents an equal degree of clearness in the transparent part and within the pupil, but also that an equal degree of contraction exists between each of the pupils. This is of much consequence. If an inequality in size and form be observable between the pupils, the least of them has been in some way affected, and will probably become so again. It is even more sus-

picious when a turbid milkiness appears on any part of the transparent portion; and equally so when the inferior part looks other than clear; or in a very strong light, with a lively bluish tinge. When it is all turbid, viewed under various aspects, regard it attentively, and there may probably be found an inward speck of perfect white, which is the nucleus or central point of an incipient cataract. A glassy, greenish cast in the eye should always excite suspicion. Such eyes are not unfrequently totally blind.

The nose or organ of smell, in most quadrupeds, is next in importance to that of the eye. Its sensibility is derived from the olfactory nerves, spread over its surface. It is this membrane which is the seat of the glanders. The horse breathes in all ordinary cases through the nostrils.

The external parts of the mouth are the lips, cheek and beard. The lips are fleshy masses, covered with skin, and forming the organ of touch. The cheeks are muscular and moveable, and furnished with hair.

The internal parts of the mouth are the teeth, the gums, the alveolar edges, the palate, the tongue and the parts of the great posterior cavity. The gums are a spongy substance which hold fast the teeth. The palate forms a bony arch, covered by membranous folds, which are apt, when the stomach is affected, to become swollen, and this is called the lamper.

The tongue is a long fleshy mass, adapting itself below, to the form of the channel, and above, to the arch of the palate. It is a principal organ in mastication.

The pharynx is formed by the termination of the mouth and nose.

The larynx is placed at the posterior part of the cavity, and forms a kind of cartilaginous box, or entrance to the wind pipe, furnished with a moveable door, which fills up the cavity formed by the arch of the palate curtain, thereby closing the cavity of the

mouth and forcing the animal to breathe through his nose.

The parotid glands, or in the language of farriers, the *wrees*, are two pretty large bodies on each side of the head, extending from the base of the ear around the angle of the jaw. Each parotid gland has little ducts, uniting into one and entering the mouth about the second molar tooth. These glands furnish saliva for the use of the mouth, and it is a gathering in them that constitutes the strangles in young horses. The external parts of the neck are the common coverings, the cervical ligament, the muscles, and the jugular or neck veins.

The internal parts of the neck are the vertebræ, which pass the spinal marrow; the carotid arteries, which pass up under the jugular veins; the trachea or wind-pipe, for the transmission of air; and the œsophagus, a continuation of the funnel-like cavity of the pharynx.

When the chest of the horse is opened, a smooth polished membrane is seen, covering its contents, which is called the pleura.

The diaphragm or midriff, divides the chest from the belly by its disk, and is a very important part of the body of the horse.

The heart is the great agent of circulation, and is composed of membranous and muscular fibres, having four principal cavities and several openings.

The lungs are spongy masses, divided into right and left, with lesser divisions termed lobes. Their color, in a colt, is a light lively pink; in a full grown horse, they approach to a gray tint. These parts are extremely liable to inflammation.

The viscera of the abdomen includes the stomache the lobes of the liver; the omentum or caul to the whole inferior curvature of the stomache; the spleen, the kidneys; the rectum; the ovaria; the uterus; the bladder; the diaphragm; the gullet; the trachea, etc.

The abdomen, or cavity of the belly, forms an oval

vault, and is the largest cavity of the body. It is elastic and strong.

The horse has but one stomach, and that is a small one. It is peculiarly constructed. It is immediately contiguous to the diaphragm, or great breathing muscle. This accounts for the difficulty of respiration after full meal.

The intestines are not merely secreting organs, but possess digestive character; and may be considered as continuations of the stomachic viscera. This is more particularly the case with the small intestines.

The spleen or milt, is a very spongy body situated at the greater extremity of the stomach.

The kidneys are two excremental glands, placed in the lumbar region, the right more anterior than the left. From the cavities of the kidneys, the duct termed the ureter passes out, and carries off the urine secreted within them. These ureters convey the urine to the bladder.

The bladder of the horse is a membranous sack for the reception of the urine, raising on the pubis, immediately under the rectum. To the bladder is attached a membranous pipe called the urethra, which passes through the penis, and by that means ejects the urine.

The male organs of generation in the horse, are the testicles, which are two in number.

The penis or yard, is a long body, in one part nearly prismatic, and in another, cylindrical. It is composed of two flattened portions closely connected, a spongy canal, which is the urethra above mentioned, and the glands or head.

Inflammation of the Lungs.

There is no animal among all those subdued that previous to his breaking in, is so free from disease as the horse; there is no animal which, after he has been enlisted in our service, is so liable to disease, and especially at the lungs. How do we account for this? Few things can be more injurious to the delicate mem-

brane that lines the cells of the lungs, than the sudden change from heat to cold, to which, under the usual stable management, the horse is subject. In the spring and autumn, the temperature or heat of most stables is several degrees higher than that of the open air; in winter it is frequently more than thirty degrees. The necessary effect of this must be to weaken and exhaust the energies of the parts most exposed to the influence of these changes, and they are the lungs. It is, however, not only heated but imprisoned air that the horse respires; composed of his own contaminated breath, and of vapours from his dung, and particularly from his urine, strongly impregnated with hartshorn, painful to the eyes and irritating to the chest.

There is likewise an intimate connection between the lungs and the functions of the skin. When the insensible perspiration is suddenly stopped, cold and cough are the first consequences. What must inevitably happen to the horse that stands, twenty hours out of the year and twenty, in a heated atmosphere, and stands there warmly clothed, and every pore of his skin opened, and the insensible perspiration, and the sweating too, profusely pouring out, and then, with his coat stripped from his back, is turned shivering into a nipping winter's air? The discharge from the skin, once arrested, and the revulsion, or pernicious effect of the sudden stoppage of a natural evacuation, falls on the lungs, too much weakened, and exposed to inflammation by heated air and poisonous fumes.

These simple observations are pregnant with interest and instruction to all connected with horses. He who would have his stud free from disease, and especially of the lungs, must pursue two objects: coolness and cleanliness. In the gentleman's stable, the first of these is studiously avoided, from the preference or the ill-nature of the groom, and from these causes proceed most of the cases of inflamed lungs;

especially when this heat is combined with that temporary and mischievous nuisance, the repeated breathing of the same air during the night, and that air more vitiated by the fumes of the dung and urine. In the stables of the post-rider, where not only closeness and heat, but the filth that would not be endured in a gentleman's establishment, are found, both inflammation of the lungs and glanders prevail; and in the stables of many agriculturists, cool enough from the poverty or carelessness of the owner, but choked with filth, inflammation of the lungs is seldom seen, but mange, glanders, and farcy abound.

SYMPTOMS.—Inflammation of the substance of the lungs is sometimes sudden in its attack, but generally preceded by symptoms of fever. The pulse is occasionally not much increased in frequency, but oppressed and indistinct; the artery is plainly to be felt under the finger, and of its usual size, but the pulse no longer indicates the expansion of the vessel, as it yields to the gush of blood, and its contraction when the blood has passed; it is rather a vibration or thrill, communicated to a fluid already over-distending the artery; in a few cases, even this almost eludes the most delicate touch, and scarcely any pulsation is to be detected. The extremities are cold; the nostril is expanded; the head thrust out, and the flanks begin to heave. There is a peculiarity in the working of the flank. It is not the deep laborious breathing of fever, nor the irregular beating of the broken wind, in which the air appears to be drawn in by one effort, while two seem to be necessary to expel it; but it is a quick hurried motion, evidently expressive of pain, and of inability to complete the action, on account of the pain, or of some mechanical obstruction. The membrane of the nose is of an intensely florid red—more vivid in the inside corners of the nostrils, and remaining concentrated there, if at times it should seem to fade away higher up. The countenance is singularly anxious, and indicative of suffering, and

many a mournful look is directed at the flanks. The horse stands in a singular manner, stiff, with his fore-legs abroad, that the chest may be expanded as much as possible, and he is unwilling to move, lest for a moment he should lose the assistance of the muscles of the arms and shoulders, in producing that expansion; and for the same reason, he obstinately stands up day after day, and night after night; or if he lies down from absolute fatigue, it is but for a moment.

In many instances, however, the approach of the disease is very treacherous, and the most careful practitioner may be deceived. The groom may perceive that the horse is somewhat off his feed, and dull, but he pays little attention to it; or if it arrests his notice, he only finds that the coat stares a little, that the legs are colder than usual, and the breathing in a slight degree quickened and shortened. In other cases, the symptoms are those of common fever, catarrh, or distemper; and the characteristics of true inflammation of the lungs appear late and unexpectedly. The cold leg and ear, the quickened, not deepened inspiration, the disinclination to lie down, and the anxious countenance, will always alarm the experienced observer.

Whatever may be the state of the pulse at first, it soon becomes oppressed, irregular, indistinct, and at length almost imperceptible. The heart is laboring in vain to push on the column of blood with which the vessels are distended, and the flow of which is obstructed by the clogged-up passages of the lungs. The legs and ears, which were cold before, become more intensely so—it is a clayey, deathly coldness. The mouth soon participates in it, and the breath too. The bright red of the nostril fades away, or darkens to a livid purple. The animal grinds his teeth. He still persists in standing, although he often staggers and almost falls; at length he drops, and after a few struggles he dies.

The duration of the disease is singularly uncertain.

It will occasionally destroy in less than twenty four hours, and then the lungs present one confused and disorganized mass of blackness, and would lead the inexperienced person to imagine that long inflammation had gradually so completely broken down the substance of the lungs. Such a horse is said to die rotten, and many attempts have been made to prove that he must have been unsound for a great while, and probably before he came into his last owner's possession, and some expensive law suits have been instituted on this ground. Let our readers, however, be assured, that this black, decomposed appearance of the lungs proves no disease of long standing, but inflammation intense in its nature, and that has very speedily run its course. The horse has died from suffocation, every portion of the lungs being choked up with this black blood, which has even broken into and filled all the air-cells by means of which it should have been purified.

More frequently the disease lasts a little longer. The lungs are sufficiently pervious for some blood to be transmitted, but the inflammation is too great to be subdued, or proper means have been taken to subdue it; and it runs its usual course, and proceeds to actual mortification, and the lungs are found not only black, but putrid. This, too, would prove recent and violent inflammation, and not any old and unsuspected disease. This termination would be indicated, a day or two before the death of the animal, by the stinking breath and offensive discharge from the nose.

A frequent, and to the practitioner and the owner, a most annoying termination of inflammation of the lungs, is dropsy in the chest. The disease seems to be subdued; the horse is more lively; his appetite returns; his legs and ears become warm; and those about him are deceived into the belief that he is doing well; nay, the most skillful surgeon is sometimes deceived. The anxiety to save his patient makes him hope the best, although the coat continues unhealthy,

there is a yellow discharge from the nostrils, the pulse irregular, and the horse is frightened if suddenly moved, and especially if his head be considerably raised in the act of drenching, and he rarely or never lies down. Many days or some weeks will pass on, with these contradictory and unsatisfactory appearances; and a judgment of the result can only be formed by ballancing them against each other. At length the patient shivers, the old symptoms return, and he very soon dies. On opening him, both sides of the chest are found nearly filled with fluid, impeding the pulsation of the heart, and the expansion of the lungs, and destroying the horse by suffocation.

Although the life of the horse may be saved, the consequences of inflammation of the lungs may often materially lessen, or even destroy the usefulness of the animal. As in many external inflammations considerable thickening of the part long remains, so a deposit of the coagulable portion of the blood may be left in the substance of the lungs, occupying the place of many of the air cells, and preventing the contraction and closing of others. This produces the peculiarity of breathing, almost incompatible with speed or continuance, called thick wind; and frequently precedes broken wind, when from the violent action thus impeded by the obstruction we have described, some of the air-cells become ruptured. Too frequently, considerable irritability remains in the membrane lining the air-cells, and in other portions of the air-passages, and a cough is established, which, from its continuance, and the difficulty of its removal, is called chronic cough. We have already considered inflammation of the lungs, as one of the causes of roaring.

TREATMENT.—The treatment of inflammation of the lungs must evidently be of one most decisive kind. We have to struggle with a disease intense in its character, and we must attempt radically to cure, and not merely to palliate it. We must look to the future usefulness of the horse, and not to the possibility of

his being enabled to drag on an existence almost uncomfortable to himself. Supposing the attack to have just commenced, the horse should be bled, not only until the pulse begins to rise, but until it afterwards begins to flutter or stop, or the animal is evidently faint. The effect of the bleeding, and not the quantity of the blood taken, should be regarded; for the inflammation being subdued, the lost blood will soon be supplied again. This is one of the cases in which it is absolutely necessary that the surgeon, or the owner, should stand by with his finger on the pulse and mark the effect that is produced. If, six hours afterwards, the horse continues to stand stiff, and heaves as quickly and laboriously as before, and the legs are as intensely cold, and the membrane of the nose as red, the bleeding should be repeated, until the same effect again follows. In the majority of cases the inflammation will be now subdued. A third bleeding may, however, sometimes be necessary, but must not be carried to the same extent, for it is possible, by too great evacuation of blood, to subdue not merely the disease, but the powers of nature. If, after this, the legs become cold, and the heaving returns, and the membrane of the nose reddens, and the horse persists in standing, bleedings to the extent of two or three quarts will be advisable, to prevent the re-establishment of the disease. In all these bleedings, let not the necessity of a broad shouldered fleam or lancet, and a full stream of blood be forgotten. These are circumstances of far more importance than is generally imagined. The appearance of the blood will be some guide in our treatment of the case. The thickness of the adhesive buffy, yellow colored coat, which in a few hours will appear on it, will mark with some degree of accuracy the extent of the inflammation. Not regardless of the appearance of the blood, but not putting too much faith in it, we must look to the horse to determine how far that inflam-

mation may have been diminished, or a repetition of the bleeding be necessary.

When the bleeding has evidently taken effect, we must consider by what means we may further abate or prevent the return of the inflammation. We should blister the whole of the brisket, and the sides, as high up as the elbows. Blisters are far preferable to rowels. They act on a more extensive surface; they produce a great deal more inflammation; and they are speedier in their action.

To insure the full operation of the blister, the hair must be closely shaved, and an ointment composed of one part of powdered Spanish flies, and four of lard and one of resin, well rubbed in. The lard and resin should be melted together, and the powdered flies afterwards added.

To form a rowel, the skin is raised between the finger and thumb, and, with a lancet, or scissors contrived for the purpose, a slit is cut an inch in length. Into this a piece of tow is inserted, sufficient to fill it, and previously besmeared with blister ointment. This causes considerable inflammation and discharge. If a little of the tow be left sticking out of the incision, the discharge will conveniently dribble down it. The tow should be changed every day, with or without the ointment, according to the action of the rowel, or the urgency of the case. The large piece of stiff leather, with a hole in its center, used by the farrier, is objectionable, as not being easily changed, and frequently, in the extraction of it, tearing the skin so as to cause a lasting blemish.

The blister sometimes will not rise. It will not when the inflammation of the chest is at its greatest intensity; too much action is going on there, for any to be excited elsewhere. The blister occasionally will not act in the latter stages of the disease, because the powers of nature are exhausted. It is always a most unfavorable symptom when the blisters or the rowels do not take effect. The best time for the ap-

plication of the blister, is when the inflammation is somewhat subdued by the bleeding; and then by the irritation which it excites, and in a part so near the original seat of disease, the inflammation of the chest is neither abated or transferred to the skin; for, it is an important law of nature, that no two violent actions of different kinds can take place in the frame at the same time.

Next comes the aid of medicine. If the patient was a human being, the surgeon would immediately purge him. We must not do this; for from sympathy between the bowels and the lungs in the horse, we should either produce a fatal extension of inflammation, or a transferring of it in a more violent form, and the horse would assuredly die. We must back-rake, administer clysters, or perhaps give eight ounces epsom salts, dissolved in warm gruel. No castor oil must be given. It may be a mild and safe aperient for the human being; it is a very dangerous one for the horse.

Having a little relaxed the bowels, we eagerly turn to cooling or sedative medicines. The farrier gives his cordial to support the animal, and prevent rottenness. He adds fuel to the fire, and no wonder the edifice is frequently destroyed. Nitre, digitails, and emetic tartar, should be given in the doses already recommended, and persisted in until an intermittent state of the pulse is produced. Many practitioners give hellebore in doses of half a dram, or two scruples, every six or eight hours, and they say with considerable advantage. It is continued until the horse hangs his head, and saliva drivels from his mouth, and he becomes half stupid, and half delirious. These symptoms pass over in a few hours, and the inflammation of the chest is found to be abated. If it be so, it is on the principle of the blister, the determination of blood to the head, and the temporary excitement of the brain or its membranes, divert the inflammation or a portion of it from its original seat.

and give the time for the parts somewhat to recover their tone. We confess that we prefer the digitails, emetic tartar, and nitre; they considerably lower the pulse, and are safe.

It is of importance that we determine the blood, or a portion of it, from the inflamed and over-distended part to some other region. On this principle we may warmly clothe the horse laboring under this disease, that we may cause the blood to circulate freely through the vessels of the skin, and that we may keep up the insensible perspiration, and perhaps produce some sweating. But do we put the horse in a warm place? No; for then we should bring the heated and poisoned air in contact with the inflamed lungs, and increase the excitement, already too great. It is an absurd practice to shut up every door and window, and exclude, if possible, every breath of air; rather let every door and window be thrown open, and let pure and cold air find access to these heated parts. It is interesting to see how eagerly the horse avails himself of the relief which this affords him. If no direct draft blows against him, he can scarcely be placed in too cool a stall or stable.

Now and then the whole skin of the horse may be rubbed with the brush, if it does not tease and worry him; but it is indispensable that the legs should be frequently and well hand-rubbed to restore to circulation in them, and they should be covered with thick flannel bandages. As to food, we do not want him to take any at first, and most certainly the horse should not be coaxed to eat. A very small quantity of hay may be given to amuse him, or a coal mash, or green meat (food), but not a particle of corn.

In eight-and-forty hours the fate of the patient will generally be decided. If there be no remission of symptom, the inflammation will run on to congestion of the lungs, and consequent suffocation, or to gangrene. We must, in this case, give the medicines more frequently; repeat the blister; bleed if the state

of the animal will bear it; and rub the legs or even scald them. If the strength now rapidly declines, the horse may be drenched with gruel, and tonic medicine may be tried, as camomile at first, and this not recalling or increasing the fever, a little ginger and gentian may be added.

Should the heaving gradually subside, and the legs get warm, and the horse lie down, and the inflammation be apparently subsiding, let not the owner or practitioner be in too great haste to get the animal well. Nature will slowly, but surely and safely, restore the appetite and strength; and it is very easy to bring back the malady in all its violence by attempting to hurry her. The food should be the same, cold mashes, green meat, or a little hay, if green meat can not be procured, and thin gruel drank from the pail—not given as a drench. Should the horse be very weak, or scarcely eat, tonics may be tried. The way should be felt very cautiously with the camomile, and the sedative medicine be immediately resorted to if there be the slightest return of fever. To the camomile, the gentian and ginger may be gradually added, but no mineral tonic. After a while, hay may be offered and a little corn, and the horse is suffered very gradually to return to his former habits.

The causes of inflammation of the lungs are changes from cold to heat, or heat to cold; exposures to cold while the horse is hot; washing with cold water immediately after exercise; sudden exposure to cold, after coming from a hot stable; traveling in the face of a cold wind; the transference of general fever to the lungs previously disposed to inflammation from the usual stable management; and neglected catarrh, or catarrh treated with stimulants instead of cooling medicines. Any change from heat to cold, or cold to heat, will produce it with almost equal certainty; the removal from a warm stable to a cold one, or from a cold one to warmer; from grass to the stable, and from the stable to grass, will equally give rise to dis-

ease of the lungs. It is generally the effect of our erroneous system of management.

We shall presently state the symptoms of which inflammation of the lungs may be distinguished from catarrh fever. It may be distinguished from inflammation of the bowels by the pulse, which, in the latter disease, is small and wiry; by the membrane of the nose, which is not then so much reddened; by the indication of pain as kicking at the belly, stamping, and rolling; by his eager scraping of the litter, and by the belly being painful to the touch, and also hot, when the bowels are inflamed.

We are, from our limited knowledge of physiology, aware that there is a great sympathy between the bowels and lungs in a horse, and believe that the practice of violent purging would prove fatal in most cases of pneumonia or inflammation of the lungs in the horse, yet we believe that the great *via* or opening, should be unobstructed when the subject labors under this disease. Drastic purgatives are at all times more injurious than beneficial.

The treatment of this disease varies in many particulars, but the general one is, depletion; free blood letting, and emollient laxatives. If this course is pursued in the first stage of the disease, the animal may recover; but if it let run on a short time, the horse must die.

Some recommend copious bleeding, then follow it by purgative.

Laxative.

Take liquid bacon, (lard), one-quarter of a pound; olive oil, one-half pound; extract of acacia bark, four ounces; wine, one pint; drench the horse. If this does not operate by night, inject the following clyster, and repeat the laxative immediately afterwards.
No. 6, Sect. 130. *A Clyster.*

Drink for Heaving of Lungs.

Take hyssop, dill, of each two handful; fleur-de-lis, (flag-flower), one ounce; hoarhound, origan, of

each, one-half ounce; licorice root, two ounces; butter, one-quarter of a pound, and one-quarter of honey water; mix—decoct, and administer one-half of it at once.

The breast of the horse should be daily greased with the following ointment:

Duck oil, one ounce; butter, one-quarter of a pound; oil of rue, and flag-flowers, of each, four drams; mix—anoint. This should be succeeded by giving the following drink every other day: The yolk of ten eggs, and one quart of mutton broth, mixed—given lukewarm.

Pleurisy.

Hitherto we have spoken of inflammation of the substance of the lungs; but inflammation may attack the membrane covering them and lining the side of the chest, (the pleura), and be principally or entirely confined to that membrane. This is termed pleurisy. The causes are the same as inflammation of the substance of the lungs, and the symptoms are not very dissimilar. The guiding distinction will be the pulse. As the blood in this disease still traverses the lungs without obstruction, we have not the oppressed pulse, but rather the hard, full pulse, characteristic of inflammation; the extremities are cold, but not much so; the membrane of the nose intensely red in the former disease, because it is a continuation of the inflamed lining of the air cells of the lungs, is here but little reddened, because there is no connection between them; if the sides are pressed upon in pleurisy, pain will be felt, which the horse will express by a kind of grunt, and which is easily explained by the pressure being applied so close to the seat of disease. The manner of standing, however, will remain the same, and the obstinacy of standing the same, and the extension of the neck, and protrusion of the nostril. After death, the pleura of the ribs and lungs will exhibit stripes or patches of inflammation, and the chest will be generally filled with serous fluid.

Copious bleeding is indicated here, as in inflammation of the substance of the lungs. Blisters and sedative medicines must likewise be restored to. The fever powder, No. 73-74, and fever drinks, No. 75, Section 188, are highly recommended in pleurisy as sedatives, by adding a small quantity of hyosciamus, one dram to each formula: they form a sufficient sedative. The only important difference is, that aperients may be administered with more safety than in the former disease. Puncturing of the chest to give escape to the fluid that is thrown out in it may be attempted. It can not do harm, but it has very seldom saved or much prolonged the life of the animal. If the operation be attempted, it should be as soon as the presence of the fluid is suspected, and the means by which this may be ascertained we have already described. The opening should be effected with the common trocar used for tapping in dropsy in the human being, and should be made between the eighth and ninth ribs, and close to the cartilages. Diuretic medicines, combined with tonics, should be administered.

Catarrh. or Common Cold.

This is a complaint of frequent occurrence, generally subdued without much difficulty, but often becoming of serious consequence, if neglected. It is accompanied by a little increase of pulse; a slight discharge from the nose and eyes; a coat somewhat roughened; a diminution of appetite, and cough sometimes painful and frequent. A little warmth, a few mashes, and some doses of the medicine recommended under inflammation of the lungs, will speedily effect a cure. Should the cough be very painful and obstinate, it may be necessary to bleed; but then the disease is degenerating into bronchitis or catarrhal fever.

The division of the windpipe just before it enters the lungs, and the innumerable vessels into which it immediately afterwards branches out, are called the

bronchial tubes, and inflammation of the membrane that lines them is termed.

Bronchitis.

It is catarrh extending to the entrance of the lungs. It is characterized by quicker and harder breathing than catarrh usually presents, and by a peculiar wheezing, which is relieved by the coughing up of mucous.

It is to be treated by bleeding, far less copious than in inflammation of the lungs, or even in catarrh. The horse will bear to lose only a small portion of blood when laboring under inflammation of the bronchial passages. The chest should be blistered, and digitalis given, and the other treatment similar to that for inflamed lungs, with the exception of the bleeding. Thick wind is a frequent consequence of neglected bronchitis.

Catarrhal Fever.

This malady has various names among horsemen, as epidemic catarrh, influenza, distemper. By the latter name it is generally distinguished in racing stables.

SYMPTOMS.—It usually commences, like inflammation of the lungs and fever, with a shivering fit; to which rapidly succeed a hot mouth, greater heat of the skin than is natural, heaving of the flanks, and cough. The eyes are red and heavy, and membrane of the nose red, but considerably paler than that of the lungs, and even occasionally bordering on a livid hue. From the very commencement of the disease there is some discharge from the nose; at first, of a mere watery nature, but soon thickening, and containing flakes, some of which stick to the membrane of the nose, and have been mistaken for ulcers.

This discharge, at no great distance of time, becomes mattery and offensive. The glands likewise of the throat and under jaw become enlarged, and the membranes of the nostril and the throat are inflamed and tender, and therefore the food is “quidded,” and

there is difficulty even in swallowing water, particularly if it be cold. The horse sips and slavers in the pail, and repeatedly coughs as he drinks. The cough is sometimes frequent and painful; so much so, that the horse repeatedly stamps with his feet, and shows signs of impatience and suffering in the act of coughing. To these symptoms rapidly succeeds very great weakness. The horse staggers, and sometimes almost falls as he moves about his box; or he supports himself by leaning his sides or quarters against the stall. To the inexperienced observer, this early and excessive weakness will be very alarming, and he will give up the horse as lost. The legs generally swell, and enlargements appear on the chest and belly. These, however, generally are favorable. The pulse is quickened. It rises to sixty or seventy, but the number of its beatings, and the character of the pulse, which is seldom very hard, depend much on the degree of fever which accompanies the disease.

After a few days the cough becomes less frequent and painful; the glands of the throat diminished; the horse begins to eat a little green meat, and is more cheerful. In some cases, however, the membrane of the nose reddens, or streaks of red run through the lividness; and the legs become cold, and the countenance haggard, and inflammation of the lungs is at hand. At other times the breath is offensive; the discharge from the nose bloody; the evacuation loose, and slimy, and bloody; and the animal is speedily destroyed. The cause of this disease is obscure. It may be the consequence of common cold; or it will more frequently depend on some unexplained influence of the atmosphere. About the middle of spring and the commencement of autumn it is most frequent. Many horses in the same district, or in almost every part of the country, will be attacked by it. If the spring or autumn be wet or variable, almost every cold will degenerate into it; and there are too many circumstances which lead us

to conclude that it is infectious. A lot of horses was bought at one of the fairs. They were all, but one, sent immediately to the residence of the purchaser at a considerable distance. The remaining one was employed for some purpose, and afterwards sent on a journey. He was seized with a distemper, and on recovering sufficient to travel, he was taken home. Three months had now elapsed since the purchase, and the other horses had been perfectly healthy; but in less than a fortnight after this horse arrived, they all sickened with distemper.

The treatment of catarrhal fever requires much judgment. It is clearly febrile in its commencement; but it speedily assumes the character of weakness. We will suppose that disease is discovered at its very commencement. Bleeding will then be indispensable, regulated in quantity by the degree of fever; rarely exceeding four quarts, never intentionally pursued until the animal is faint, and immediately stopped when there is the slightest appearance of faintness. The bleeding should be repeated if the pulse is frequent and strong; or if the membrane of the nose is getting red, and the legs cold, and even although weakness should be rapidly coming on; but it should be in small quantity, and the effect of it carefully watched.

If the disease has been suffered to run on for two or three days, and the horse begins to stagger, the practitioner or the owner will consider all the symptoms well before he ventures to bleed. Redness of the nostrils, heat of the mouth, quickness and force of pulse, heaving of the flanks, or coldness of the legs, will require the loss of blood, notwithstanding considerable weakness; but if the animal is quite off his feed, and the inside of the nose is livid, and he is fast losing condition as well as strength, bleeding will be better avoided.

It is of importance that the bowels should be evacuated; and there is not so much danger in the use

of a little purgative medicine as in inflammation of the lungs. Two drams of Barbadoes aloes may be given in the form of a ball, or in solution; and in twelve hours another dram may be given, and even a third dose twelve hours after that, if the fæces have not been loosened; taking care to back-rake the animal, and to administer of injections of thin gruel.

The sedative medicines at first exhibited should be the same as in inflammation of the lungs, and in the same quantity; but as soon as the fever begins to remit, two drams of the spirit of nitrous ether should be added to each dose; and, the weakness increasing, and the fever still more subsiding, the camomile may be ventured on, but with caution. Warm clothing is necessary, and particularly about the head; and although the box should still be airy, it should not be so cool as in inflammation of the lungs. If the throat be so sore that the animal will not eat, either the parotid or the submaxillary glands, or both, should be blistered. It will be far better to blister them at once, than lose time by the use of weaker and ineffective applications. The discharge from the nose should be promoted, and the natural progress of the inflammation of the nose and throat hastened by hot mashes being frequently put in the manger, or if the horse is not too much distressed by it, hung under his nostrils in a common nose-bag. When this is resorted to, a hood about the head will be particularly necessary.

A great deal of weakness soon follows an attack of catarrhal fever, and it will then be necessary, even while we are subduing the fever, to support the strength of the animal. He should be offered bran mashes, malt mashes, damped hay, green meat, or carrots. If he refuses to take them, they should be inserted between his grinders, when, being compelled to bruise them a little in endeavoring to get rid of them, and thus experiencing their taste, he will often be induced to eat several little portions.

If he obstinately refuses to feed, he must be drenched with thick gruel; but this will seldom be necessary if all water be refused him from the earliest period of the disease, and a pail with thinner gruel be suspended in some part of his stall. When he finds that he can get nothing else, he will drink sufficient of this to afford him all the nutriment we require. The preservation of due warmth in the extremities is as necessary here as in inflammation of the lungs, and should be attempted by warm bandages, and frequent hand-rubbing.

The terminations of this disease most to be dreaded are inflammation of the lungs, and putrid fever. We know how to guard against the former, and we shall presently speak of the latter. When, however, the disease hangs long upon the horse, there is usually much mischief done in the chest, although the animal may recover. Thick wind, broken wind, and chronic cough are its occasional consequences; and likewise, as the disease has affected so great a portion of the air passages, a peculiar liability to cold and cough, and, not frequently, an unpleasant and troublesome discharge from the nose will remain. Of the latter we have spoken under the title of nasal gleet; the others will presently come under consideration. The farmer will not forget the infectious nature of this disease, and will immediately separate the sick animal from his companions.

The disease with which catarrhal fever is most likely to be confounded is inflammation of the lungs; and as the treatment of the two is in some particulars so different, the farmer should be enabled readily to distinguish between them. If a little care be used this will not be difficult. The febrile character of the pulse, the early discharge from the nose, the frequent and painful cough, the enlargement of the glands, and the soreness of the throat; the rapid loss of strength, the sometimes constant, and at other times variable warmth of the legs; the fidgettiness

and pawing, will sufficiently distinguish catarrhal fever from the oppressed pulse, red nostril, heaving flank, little cough, fixedness of limbs, and coldness of the extremities which accompany and characterize inflammation of the lungs.

The Malignant Epidemic.

This commences with nearly the same symptoms as catarrhal fever; it probably at the beginning is catarrhal fever, but more than usually violent, and sooner exhausting the powers of the frame.

Its symptoms are rapid loss of strength, stinking breath, foetid discharge from the nostrils, all the evacuations becoming highly offensive, the pulse rapid, small and weak, and the animal obstinately refusing to eat. It soon runs its course. Gangrene soon succeeds to inflammation, and rapidly spreads from the part first inflamed through the whole of the cellular substance, and every portion of the frame. When veterinary science was in its infancy, this pest used periodically to appear, and carry off hundreds of horses, and that breeder is fortunate who does not now sometimes suffer from its ravages. The treatment of it is very unsatisfactory. The prevention may be a little more in our power, by endeavoring to get rid of the previous disease by one bleeding, when, in some seasons, catarrhal fever appears under a form more than usually violent; and by bleeding with extreme caution, or not bleeding at all, when debility begins to appear. A mild purgative may be first administered to carry off a portion of the offensive matter contained in the bowels; after which, chalk, and ginger, and opium, and gentian, and colombo, with port wine, may be plentifully given, with green meat, or thick gruel; but except the horse be valuable, the chance of saving him is so light, and probably the danger of spreading the pest so great that prudence will prompt his destruction. Most frequent in occurrence among the consequences of catarrhal fever, and inflammation of the lungs, is chronic cough.

THE WILD COLT.

The first requisite in the management of the wild colt is to have a good room or training yard of about twenty-five by thirty or forty feet. See that possible causes of injury are removed, get the colt into this room or inclosure as quietly as possible; if very wild, see that hens, chickens, etc., are driven out. Say to your friends, it is necessary to your success and a condition of your instructions to be alone.

Your first object is to halter the colt. If not very wild, you can easily work up to the shoulders and head, and by scratching the mane, etc., slip the halter on the head. But if the colt is wild, this may be difficult, if not dangerous, and one of the most important requisites is to guard against injury either to yourself or horse, and at the same time accomplish your end most easily and surely. The best way to do this, is to proceed as follows:

Take an edging or pole about ten or twelve feet long, more or less, as you may happen to find, or danger may require. Whittle up a few strong chips with your knife, about an inch or two from the end, towards the center, and about seven or eight inches from this, whittle up a few more chips from the opposite direction, or you can drive a couple of nails into the stick about the same distance apart, the heads bent a little outward from each other. Take a common rope halter with a running noose, pull the part that slips through the noose back about two feet. Now hang the part that goes over the head upon the chips or nails at the end of your pole nicely, with the hitching part held in your hands with the stick. Your halter is now so spread and hung upon the stick,

as to be easily put upon the head. If the colt is not greatly excited, he is easily attracted to the notice of whatever is new to him. He has no way of examining objects but by his nose, and so he is prompted to smell and feel of things that are new and strange to him. Consequently you will find upon reaching out the halter gently, hung as above upon the end of your pole, he will reach out to smell and feel of it, and while he is gratifying his curiosity in this way, you can easily raise the stick high enough to bring the halter over and back of the ears, when by turning the stick half way round, the halter will drop from it upon the head. This may frighten the colt a little and cause him to run from you, but by doing so, the slack of the part passing back of the jaw through the noose, will be pulled up and the halter is on the head securely.

Having your colt haltered, your object next is to teach him to submit to its restraint. Take a position about on a line with the shoulders, but at some distance, and give him a sharp, quick pull towards you, but instantly slacking upon the halter. You have the greatest advantage from this position, and by adroitly following up this advantage, not attempting to pull upon the colt when he attempts to run back or from you, he will soon, by a few sharp pulls in this way, learn to feel and submit to the force of your power. Should you pull slow and steady, he would learn to pull back upon you, and might throw himself down. This you will avoid by letting loose the instant after you pull. When there is a disposition to yield to you, get on the opposite side and repeat pulling in the same manner, gradually alternating from side to side, until the colt will come around promptly.

You are to carefully avoid pulling ahead, until there is a prompt submission to the restraint sideways. You can then gradually pull a little more on a line with the body, until the colt will follow readily

If the colt is of a quick, prompt character he will soon learn to submit to the restraint of the halter; but if very young or of a slow, sulky disposition, unaccustomed to being handled, the most reckless resistance is likely to be evinced. These fellows will sometimes strike, kick, and plunge with remarkable energy when pulled upon. When this character is shown, it is necessary, not only to be patient, but careful. If the colt becomes excited and reckless, let him stand until cool, then continue the lesson slowly until successful. Now put the hand lightly upon the nose and gradually work it up the head, and back upon the withers. It is possible the colt will strike with the fore feet upon being touched upon the nose, or he may stand apparently indifferent until the hand is brought up to the ears. Colts that fight in this way are exceedingly dangerous, and it is policy not to be hurried or rash. So far as the hand will be borne on the head, you can gradually work farther, but at the least cringing, or appearance of resistance, hold and work back to the nose or insensible part, then up again to the point of resistance or beyond. In this way you can work a little farther at each repetition, until there is no resistance to being handled about the head.

Now tie a knot through the noose, so that it can not slip, to prevent drawing tightly upon the nose when pulled upon, leaving the nose piece large enough to be quite loose. If the colt does not work up very well to the halter after a reasonable effort, take a short hold of the halter with the left hand, with the right grab the tail and swing him sharply for a few times, then repeat the pulling sideways upon the halter. If the colt proves decidedly sulky and you wish more power, you can either tie up one fore foot, which will greatly lessen his resistance, or put on the war bridle which will increase your power, and continue your short, quick side pulls as before. The objection to the war bridle in educating the colt to lead, is that it

affords an advantage of too much severity to be hazarded without the advantage of care and judgment.

It is often advisable and even necessary, when the colt acts sulky and excitable in breaking to lead to the halter, to make it the object of two or three lessons; at all events the lessons must be repeated to the end of perfect success.

In halter breaking, it is important that the colt should be taught to submit to be hitched. All restraints upon the head, especially by a hard rope, causes pain which perhaps frightens and stimulates to greater resistance, and as in the efforts of teaching submission to its restraint to lead, the efforts of resistance must be prevented until a sense of submission is enforced.

Hitching the Colt in Stall.

Two principles are involved in controlling and teaching the horse to submit to the restraint of the halter while hitched.

The first, by teaching a sense of restraint upon the head, until there is tacit obedience to the control of the halter. Second, by disconcerting and disabling at the moment of resistance. The first to be recommended in the management of the colt. This is best accomplished as follows:

Prepare your stall, which should be about four or five feet wide, by attaching a rope so as to bring it across and fasten firmly, so as to strike the hind parts a little below where the breechen comes, or you can bore holes through, or drive staples into the posts, and fit a pole so as to put through in the same position. Now lead the colt into the stall, and if convenient, have an assistant tie this rope or pole, previously fitted to come across the stall behind. If alone, run the halter through the ring or hole in the manger, and while holding the end in the left hand, step back cautiously and tie your rope across the stall behind.

Now tie the halter long enough, so that as the colt attempts to go back, he will strike the rope or pole across behind him, before he can feel the restraint of the halter.

You should in this, as in everything else you attempt to teach your colt, be gentle. Get the colt into the stall as quietly as possible, and after tying, which should be after the rope or pole is put up behind, get out as easily and quietly as you can. Would always unite the halter before taking down the rope or pole across behind, when wishing to remove the colt from the stall. This prudence should be observed so long as the colt is likely to resist or become frightened at the plain, possible restraint of the halter would render.

If a thorough sense of submission to the control of the halter is taught in breaking to lead, and the colt is of a prompt, nervous character, it may be scarcely necessary to resort to the prudence of putting anything across behind the colt when first hitched in the stall. But if a wilful, sulky character, and has not been handled much, the prudence of putting a pole or rope across the stall behind while hitched, is necessary for at least a week or more.

Teaching the colt to submit to the restraint of the bit is next of importance.

Bitting

Implies teaching the horse to submit the mouth to the restraint of the bit, and at the same time give the head and neck as great an elevation as the form and temper will bear. Whenever the reins are pulled upon, if this is imperfectly done, the horse may acquire habits of resistance to the control of the reins, as exhibited by pulling too hard on the bit, pulling on one rein, will not back, etc.

To accomplish this end most easily and perfectly, implies a restraint that would be both flexible and positive. If the bitting is inclined to the restraint

of a check, there being only simple dead pressure upon the mouth, if checked up at first tightly and too long, the horse may learn the habit of resting the head upon the bit to relieve the weariness of the restraint, which would possibly teach the horse to work into some one of the common habits of resistance to the control of the bit. But as such resistance is easily overcome by the use of the war bridle, (a description of which find in a future page), there is but little difficulty with ordinary care and effort to educate the mouth to submit the head fully and freely to the control of the reins.

To Get the Colt Accustomed to the Bit.

Put on the colt a common headstall with a joint bit without reins. Allow him to run about in the yard, or stand in the stall twenty or thirty minutes before taking it off. Then after a while put it on longer, and so repeat until the colt becomes accustomed to the bit.

Bitting Bridle.

The colt may now be subjected to the restraint of a bitting bridle. Any good bitting bridle will answer. The object is to bring restraint upon the bit that will hold the head up and back most easily and naturally without freedom in any direction but in the direction of the reins.

It seems needless to explain the details of making a bitting bridle. There is necessity of its being made to fit well, the gag runners to be well up near the ears, and that the throat latch is not buckled so short as to possibly choke, or press the least upon the throat when the head is thrown up.

When the bitting bridle is first put on, the reins should be buckled so as to bring the restraint upon the head a little short of entire freedom when the head is held naturally. After being on fifteen or twenty minutes, it should be removed. After an in-

terval of an hour or two, it can be put on again, and the reins buckled a little shorter, and left on a few minutes longer; then again taking it off, and as convenience may dictate put it on again, a teach repetition making the reins a little shorter, until the colt becomes accustomed to and able to bear the head to be checked up to the extreme of his capacity.

If checked up tightly and tied short at first, the colt is liable in his struggles for freedom to rear up and fall over upon his head. If kept checked up too long, the restraint becomes tiresome, and the colt may learn to relieve the weariness so caused by resting the head upon the bit, which would in most cases teach the habit of lugging and pulling down upon the bit, when pulled upon by the reins. If, however, the colt should act sulky and mad at the restraint of the check, leave it on until the fit is exhausted, and there is a disposition to submit.

The lessons should be short until the mouth becomes hardened and accustomed to the bit, consequently the shorter and more frequent the lessons are repeated during the first three or four days the better.

Very great difficulty is often experienced in both teaching good submission of the mouth and bringing the head up. When subjected to the restraint of the bit by this system of checking, on account of the imperfect manner, it is possible to teach prompt obedience of the mouth to the restraint of the reins by this system of dead pressure only, should the colt resist the bit and act sulky, put on the colt's bridle, (large loop, described in another page), and work up the mouth three or four minutes, and repeat the lesson until the head is thrown up promptly, and the mouth given back freely to a very slight restraint upon the bit.

The best form of check is made by passing the ends of the ordinary check rein through the rings of the bit, and attach to the check pieces a little above

the eyes. This form of check brings the restraint directly up and back upon the mouth, and accomplishes the object more directly of bringing the head up, than can be done by any other form of check in use.

Harnessing the Colt.

Put the harness on the colt carefully, and allow him to stand in the stall, or run about the yard for a half or three-quarters of an hour. Then remove it, and after awhile replace it again, repeating two or three times in this way, until the colt is thoroughly reconciled to harness. Then tie the tugs into the breechen, so as to be drawn moderately tight. Now put on reins and gradually teach him to go ahead and be controlled to the right or left, or to stop as you please, by the restraint of the bit. Too much should not be expected of the colt, at the commencement of this lesson. First, gradually urge him ahead by touching the whip lightly over his hips, and as he moves turn him to the right and left, until he will move promptly and turn in any direction freely to the control of the reins. Would then teach him to stop and start at will, by urging him ahead by a touch of the whip, and stopping him by pulling on the reins, being careful to say "get up," and "whoa," as each requirement of going ahead or stopping is made, until the colt learns to submit implicitly to the control of the reins, and is quite handy to drive in this way. This may require several lessons of half or three-quarters of an hour each.

Hitching the Colt to Wagon.

If it is intended to drive the colt single, would, if convenient, prefer a sulky at first. Before hitching into the shafts, he should be led up to the wagon or sulky, and permitted to feel and smell of it as he pleased. Then rattle and shake the shafts, at the same time moving the colt around so that he can see and hear the object from different sides. Should the

colt show fear of the wagon and resist control, put on the war bridle and work him up with it sharply, until perfectly manageable and reconciled to it. Then, regardless of the noise and rattle of the wagon or shafts, while between the shafts attach to the wagon quietly, and for additional safety, put on a foot strap, (a description of which find on another page), and hold as a third rein while driving. Would let the colt move off almost as he pleases, on a straight line. Then gradually, as he will bear, teach him to go to the right and left, to the control of the reins. Great care should be taken not to drive the colt too much at first, and at no time to the extreme of exhaustion. Neither should the strength of the colt be taxed much at first by driving up and down hill. Let him move on a level road until accustomed to the noise and restraint of the wagon. No attempt should be made to back the colt, until gentle and manageable to go ahead and sideways. It must be remembered that the colt can not become handy and able to stand the fatigue of much driving without time and patience. Let his drives be moderate, both in gait and distance at first. About a mile or two on a walk at first, gradually increasing the distance to as much as he will bear without fatigue. After learning to go nicely on a walk, let him trot a little, gradually letting him out faster and a little longer, as nice smooth pieces of road give opportunity, but would be very particular to confine these little bursts of speed at first to the limits of a few rods, and never to the extent of exhaustion. Let him dash out a short distance, [†] gradually pull to a walk, and speak encourage just as if talking to a boy. After a while again, perhaps pushing a trifle faster not to the extreme of breaking means expect that you

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Driving Double.

It is generally the custom to drive the colt at first in harness by the side of a gentle horse accustomed to harness. When this is designed, the colt should put on the off side, and to guard against danger, a short strap with a ring on it, should be put around the near fore-foot below the fetlock. Fasten the end of a piece of rope or strap of about eight or ten feet long to the ring. Pass the other end over the belly-band of the harness to the wagon. The strap is to be held with the reins to ensure the utmost control, should the colt become frightened and attempt to break away or kick. The whip should be held over the old horse to keep him up to the movements of the colt in starting, but the gait should be kept moderate.

In braking the colt to drive double, after driving well on the off side, he should be reversed to the near side, there being less danger of becoming frightened from getting into, or out of the wagon, or of seeing things while being passed to or from the wagon on account of being more from view on the off side. To lessen the probabilities of fear and resistance as much as possible, the off side is preferable at first. The limited understanding of the horse, seems to require that the same impressions and understanding should be given of the character and appearance of things forced to his attention on both sides. If not, when driven alone, or on the near side, he may become suddenly frightened by the moving of a robe, umbrella, the rustling of a lady's dress, etc., from that side. See articles on "Causes of Fear."

Teaching the Colt to Back.

When the colt drives well to the reins, he should

be taught to back. This is most easily done with the war or biting bridle. Should he act stubborn after using the war bridle a few moments, reverse by putting the large loop over the neck, which will touch him more sharply. If, however, he should become warm, after a reasonable effort, or a lesson of five or ten minutes, stop and repeat the lesson at any time after becoming cool and quiet, when with rare exceptions the colt will soon learn to go back promptly. You can now, if the colt is not warm or excited, put on reins and teach him to go back by being pulled upon from behind. This lesson of backing to the reins should be repeated until the colt is promptly obedient. He may now be backed to wagon, but first on a slightly descending grade, gradually requiring more, and repeating the lesson until prompt to back under any circumstances.

To Ride the Colt.

If the colt is not an extremely surly fellow, there is but little difficulty in teaching him to submit to be rode. Put on a bridle and tie the reins short over the neck; you may now, after caressing a little over the back, throw yourself lightly upon his back, and gradually work into an upright position. But if there is probability of much resistance, attach the end of a strap or web to the off fore foot below the fetlock. Take a short hold of this over the back; move the colt to the left, and when the foot is raised to step, hold it up. This may be done a few times, until the foot is submitted. Then while holding the foot up by the strap with the right hand, rest the left on the mane, over the withers, and throw yourself lightly across his back and work gently into an upright position. Then, as may be necessary, move the colt, taking and giving the foot until there is perfect submission.

To Handle the Colt's Feet.

It is natural for the colt to resist being handled about the feet. The feet are his natural means of defense, and any impudence or excitement may induce resistance.

Tie the end of your short strap gently around the hind leg above the fetlock, then, while holding the halter in the left hand, with the right, pull up this strap, which will bring the foot forward. As the foot is submitted in this way, pull it in other directions until submitted freely to the restraint of the strap. Then take the foot in the hands, put it down, take up, rub and handle it as may be necessary, until it is freely submitted in any manner. If, however, the colt is determined in resistance, the restraint must be made more positive.

Tie the end of your long strap around the neck, near the shoulders, pass the other end back between the fore legs, around the hind foot, but under the strap around the neck, and draw upon it, at the same time holding him by the bridle or halter. The colt may be frightened and jump to get clear of the restraint. Should he act very much frightened, slack upon the strap until the foot is almost back to its natural position; then, as he will bear, again pull a little shorter, at the same time pulling him around in a circle by the head, until he ceases struggling to get the foot loose. You may now pull the foot farther forward, and hold it as before, until the colt will stand quietly. Now step back a little and pass the hand down the hind leg. Slap the hand upon the leg a little until there is no resistance, then take it in the hands. If there is no resistance, undo the end of the strap, and allow the foot a little more freedom; at the same time, while holding the foot by the strap, pass the other hand from the hip down the leg quietly, rubbing and caressing until able to take in the hands. Now, let it down gently, at the same time rub the foot a little. Then, while standing in front of the

leg, put the left hand upon the hip, while you pass the other down the leg to the fetlock. At that instant press against the hip with the left hand, while you pull gently with the right upon the foot. Pressing upon the hip throws the weight of the hind parts upon the opposite leg, which relaxes the muscles of the one nearest, and allows it to be taken up freely.

The other foot must be controled and taken up in the same manner. Care should be taken when it is desired to take up the foot, that the hand is started from some part of the back or hip, and then as it is being passed down to the foot, place the other hand against the shoulder or hip of the foot, and, as before explained, at the instant of pulling upon the foot to take it up, press from you with the other hand. To forcibly take up the fore feet, pass your short strap over the back and attach it to the foot below the fetlock. Then with the left hand pull the head around to you, when, as the horse steps, with the right pull on the strap, and the foot can be taken up easily. Tamper the colt around in this position until he ceases in his struggles to free the foot, then take the foot in the hand. After rubbing it a little, put it down gently, then take it up again, and so continue until no resistance is offered.

This lesson should be repeated several times, or until the colt is made thoroughly gentle to have the feet taken up and handled.

War Bridle.

This is simply a fine threaded cotton cord of the best material, twisted hard, of about three eighths of an inch in diameter, and twelve or fourteen feet long. Tie each end into a hard knot, just as you would to prevent its raveling, with the difference of putting the end through the tie twice. Then pull down tight and hard close to the end. Now tie another knot about twelve inches from the end, but before drawing it tight, put the end through. This will make a loop

that will not slip or draw through. The great simplicity of this form of knot, with the ease with which it can be united, gives it preference to me over all other forms of knot I have ever used, and is, in my judgment, the best form of knot, all things considered, to be recommended for general use. The peculiar power this means of control enables upon the mouth, is liable to cause accident, when used upon a quick, sensitive horse or green colt, with too much energy in such a manner as to bring the restraint directly back upon the mouth, which would in many cases, cause the horse to rear up and possibly fall over backwards upon the head. The objection to this form of knots is, that it forms so sharp an angle at the point of junction as to catch and prevent the cord from sliding back loose the instant slacked upon, which would increase the danger of a horse going over upon his head when jerked upon in a rough, imprudent manner. Of course a horse is liable to get killed by such an accident, and it must and should be guarded against. But the difficulty of making and untying knots that would afford more freedom for the part passing through, makes them objectionable. The principal danger is, however, from violent jerking too much on a line with the body backwards. This loop should be just large enough to go over the lower jaw, back of the bridle teeth of the horse it is intended to be used upon.

The other end can now be formed into another loop in the same manner, with the difference of being large enough to go over the head and fit tightly around the neck, near the shoulders.

Applying the War Bridle.

There are two ways of applying and using the war bridle:

First method: While standing forward of the shoulders on the near side of the horse, throw the small loop over the neck, and take in the left hand

Then, with the right, put the large loop through from the top side. Now pass the left hand forward to the mouth, adroitly spreading the loop in the same position over the thumb, second, third and fourth fingers, at the same time the right hand is to be passed under the neck, around the head, upon the nose, which is to be grasped gently but firmly, while the loop is put over the jaw back of the bridle teeth with the left.

Second method: Take the large loop between both hands, and while standing directly in front of the horse, slide it over his head, well back upon the neck, about where the collar rests. The loop should be made in size to fit tightly around this part of the neck. Now put the other end down between the loop and neck. Put the loop this forms into his mouth back of the bridle teeth, then draw down upon the end until the slack is taken up. The small loop form we denominate the old horse's bridle. The large loop, the colt's or biting bridle. It is noticed that the action of each form is exactly the reverse of the other. When great power and control of the mouth is required, the small loop is to be used. When to give style and make the mouth sensitive to the bit, the large loop. The peculiar value of the war bridle, depends very much upon the skill and tact employed in its use.

Like the whip, it may, and often must be employed with energy, but with discretion, but always proportioned to what it is seen the horse will safely bear.

Frequent allusion will be made to the use of this means of control for different purposes. The advantages it enables over the mouth, though in itself simple, is susceptible of being made directly, or indirectly, not only an instrument of great power in many ways, but of making a great variety of impressions, both in changing and forming habits. There seems to be an intimate connection between the mouth and the brain. Hence a manageable mouth

implies a manageable horse. If the mouth is unmanageable, the horse is headstrong, wilful and vicious. Again, one of the great points of success in the successful management of horses, is the ability of attracting the mind from the channel of intentional resistance.

Now, thorough control of the mouth, enables these advantages in establishing a sense of submission beyond what can be taught in any other way, to the control of the bit. When used skillfully for such purposes as it is adapted, it is an instrument of great power and value in educating and controlling the horse into habits of submission. The effects we are now able to produce upon the mouth in a few minute's time by the use of this simple instrument, are often so great as to seem wonderful and beyond belief, if not seen.

Foot Strap.

Any piece of strap or rope of about twelve or fourteen feet in length, simply tied around the fore foot in most any manner, will answer in an emergency. But as simply tying or knotting around the foot is objectionable on account of the danger of chafing and preventing circulation, or possibly untying at some critically moment, when necessary to use a foot strap much, it should be especially adapted for the purpose, by making as follows: Have a nice smooth strap made, about twelve inches long and an inch wide, with a buckle on one end and buckle holes punched in the other. About one inch from the buckle should be fitted under the lap passing around the buckle, a ring or D stitched in nicely. The edges of this strap should be dressed down nice and smooth, or much better, cover the part coming in contact with the foot, with a piece of soft leather. This strap is intended to buckle around the foot below the fetlock. Into the ring fasten the end of a

strap or web, fourteen feet long and an inch and a half wide.

How to Use the Foot Strap.

Buckle the short strap around the near fore foot below the fetlock, then pass the long strap over the belly band on the near side, back to the wagon, and hold as a rein. This gives control of the foot at will, which so disconcerts and disables the horse as to make him comparatively helpless. If there is an effort to run away, run back, or kick, simply pulling upon the strap, throws the horse off his balance, and disables him from his purpose. This, it is seen, can be repeated and followed up at will, as may be necessary.

On the instant the foot is taken up, the horse is thrown off his balance, and to keep him from falling he has to throw the other foot forward. There is really no danger of the horse falling, and you hold him at a disadvantage that renders successful resistance almost impossible. Now if you strap up one of the fore legs, the horse cannot travel, and if disposed to kick, can balance on the other leg and kick, which he cannot do when held and disconcerted at will in this way. We are unable to carry out the principle of disabling practically, by simply strapping the leg up. The moment the strap is off, protection against resistance is removed, and your resource of control is limited to that of prudence and good management, while with the foot strap the horse is really free to travel, but completely in your control, should emergency require it. You control and disconcert the horse in the very act of resistance, and make your control available so far as it is possible to do, by disabling one foot. The short foot strap is simply a piece of web ten feet long.

CAUSES OF FEAR.

To the excitement and impulses of resistance induced by fear, may be attributed, directly or indirectly nearly all the bad habits to which horses are subject. Hence it is of the greatest importance in educating the young horse to guard against any cause of excitement that would rouse the mind to an extreme sense of danger. Repeated and continued success teaches confidence, while failure weakens and destroys strength of purpose.

The limited understanding of the horse induces great extreme of this peculiarity. Hence very susceptible to the influence of good or bad treatment, and almost wholly in character, in accordance to the influences made subject.

Were we to play upon a drum quickly or unexpectedly near a horse unaccustomed to the sound or appearance of a drum, it would in almost every instance induce the most terrible fear, and if successful in getting away, he would be ever afterwards frightened at the sound or appearance of a drum or anything of the kind; the rattle of the wagon, or flying of the blanket from his back, he would perhaps, in his terror, regard with equal alarm, and associating those things with the first cause of fear, they may become objects of equal repugnance and resistance. Now kicking is the horse's principal means of defense. The excitement and fear prompts this act. This brings his heels in contact with the whiffletrees or cross-piece, which adds to his excitement and fixes the impression that the object from which he is running, has hit him. The struggle to escape the danger

is redoubled both by running and kicking, and thus the horse becomes not only nervous, but a kicker, possibly learns to resist the control of the bit and becomes a headstrong, reckless, dangerous animal. But if the drum were brought to the notice of the horse slowly and gently, allowing him to feel of it with his nose, then touch it lightly with your finger, gradually striking harder as he would bear, it would be but a short time before the horse will bear the drum being played upon in any manner, even though it were resting upon his back, and he would care nothing about it, and be less likely to become frightened at the sound or appearance of a drum afterwards, but of other objects or sounds of like character.

We see that when the horse is not given time to get a correct understanding of the harmless character of the object, or cause of excitement, his sensibilities are liable to be stirred to an anticipation of real danger, and excite resistance, while gentle, careful management, is a repetition of convincing proofs of the innocent character of causes exciting suspicion, until the horse becomes so fearless and confident, as to care nothing about ordinary causes of excitement and restraint. Now the great difficulty with most people is, they are too harsh and precipitate. They undertake to do, and require more than they have power to enforce, or than the horse is able to understand.

In educating the colt, the rule should be to do and require only so much as he will bear and understand, by commencing slowly, and gently repeating and following up one advantage after another, to the end of inspiring entire disregard of cause of excitement. The horse's principal sense of understanding, is by seeing and feeling with the nose. This is his means of examining things new and strange to him. If in approaching the colt, you were to reach out your hand gently, he would smell and feel of it with his nose.

Every other means of understanding seems to be subordinate to this, consequently in handling the colt we should always commence at the nose, then gradually work back as there is submission. The same care should be taken to overcome fear of being handled about the feet, etc. Commence at an insensible part and work to the sensible. In educating to harness, the same prudence should be exercised by bringing the object to the nose, or leading the horse up to the object and allowing him to feel and examine it in his own way.

We must be satisfied with our ability to guard against and overcome these difficulties of fear as we can, or as circumstances and opportunity will offer. The great point of success is in guarding the horse from being roused to a great sense of danger from any cause, and gradually as he will bear, force the mind to an understanding of the innocent character of the object, or cause of excitement. Familiarity with any kind of danger blunts the sensibilities, and the object is to produce this result most easily and directly. I regard this care and prudence so essential and important in attaining real success in rendering horses gentle and manageable, that at the risk of being tedious in my explanations, I subjoin details of management in reconciling horses to the most common causes of fear.

To Reconcile the Colt to a Robe.

First, while held under careful restraint, let the robe be brought up gently to the colt's nose. After smelling and feeling of it in his own way until satisfied, rub it gently against the head, neck and body the way the hair lies, as he will bear. Then stand off a little and throw it across the back, over the neck and head, gradually stepping farther, until you can throw the robe upon and around him as you please, though quite distant.

To Overcome Fear of an Umbrella or Parasol.

While holding the colt by the halter or war bridle as may be necessary, bring the umbrella up to his nose gently, rub it against the head, neck and body, and as he will bear, then spreading it a little, repeating the process of rubbing, and so continue gaining little by little until you can raise the umbrella over the head and pass it around the animal as you please, without exciting resistance.

To Reconcile to the Sound of a Gun.

First, commence by snapping caps a short distance from the horse, gradually as he will bear, approaching nearer until you can snap caps while the gun is resting on the back, over the head, etc. Then put in a little powder, and at each repetition increase the charge until you can fire off a heavy load without exciting fear.

To Prevent Fear of Railroad Cars.

Let the animal see them at rest, then gradually lead or drive him up to them, even smelling them with his nose. Now as you have an opportunity, drive the horse around while they are moving, working up nearer as you can, at the same time turning him around so that he can hear and see them from different directions. This lesson should be often repeated, being careful not to crowd beyond what the colt will easily bear, until they cease to attract his serious attention.

Objects Exciting Fear While Riding or Driving.

Should the horse show fear of a stone or a stump, or anything of the kind, he will naturally stop instantly and stare at the object in the most excited manner. Should the cause of fear be great and sudden, he may attempt to turn around and run away. This is to be guarded against, by sitting well forward on the

seat, and taking a short hold of the reins, at the same time speaking calmly and encouragingly to the horse. Bear in mind, that the horse has a great advantage over you that his excitement is liable to precipitate his whole strength against you at the least sense of freedom, or additional cause of excitement; that once resisting in this position, he will try to do so again at all hazards, under like circumstances.

Speak encouragingly to the horse, but keep a close watch upon his actions. In a short time the tension of his alarm will not only be perceptibly relieved, but he will become calmer, and almost disregarding the object. Then drive nearer as he will bear, exercising the same patience and care. At each effort to get nearer the horse will become apparently as much frightened as at first. But keep pushing a little at a time this way as the horse will bear, until you can drive up to the object or by it, and you not only leave no bad impressions upon the mind, but gradually overcome the disposition to be frightened.

Sometimes a horse will dislike a wheel-barrow, baby wagon, turkeys, etc., but the treatment is the same. When the excitement is not so great as to endanger successful resistance, and the horse is disposed "to play off, or soldier," it may be advisable to apply the whip a little sharply, but this is to be avoided, when it is seen the resistance is wholly induced by fear, and the animal is not lazy.

Some horses while driven to carriage, will not bear the noise and excitement of other horses being driven up behind. This is principally on account of the horse's inability to see and understand the cause of the excitement, or it may be owing to the fault of the driver. Some one drives up rapidly behind, perhaps wishes to "go by," to prevent which, the colt is hallooed at and whipped up, to prevent such a result. This may be repeated a few times and the result is, if a spirited horse, the habit is acquired of rushing ahead

to avoid the punishment expected under such circumstances, and very often, too, a horse is forced into this habit by being run into from behind.

The Blinders Prevent Seeing Plainly.

It must be remembered that the bliners in general use so cover up the eyes as to make it impossible to see things plainly sideways, and wholly so from behind, must tend to this result; and certainly we are convinced of this, when we see that to overcome the animal's fear of any object, the first and most obvious point is to induce an understanding of its appearance and character. Blinders are admissable only when there is a desire to conceal the effects of a large head and to cause a naturally lazy horse to drive steadily, by preventing his ability to see when the whip is about to be applied.

The Horse Must See the Object of Fear from Different Positions.

It is one of the peculiarities of the horse to understand and be reconciled to an object, or cause of excitement only from the position and circumstances brought to his notice. This seems to be on account of the horse's reasoning powers being so limited, as to be unable to retain the same understanding of the object beyond the position from which it is brought to notice.

Every progressive change of position requiring almost the same care and patience of that preceding. For example, if in teaching a horse to become regardless of an umbrella, it were shown only on the near side, upon carrying it to the off side, would inspire nearly as much fear as at first from the near side, or there may be aversion to some particular object, or resistance may be inspired only under certain circumstances. You may succeed in getting a colt gentle to be rode from the near side, but upon attempting to do so from the off side, would, in all

probability, be resisted. A gentle horse upon being hitched to a top buggy for the first time, upon getting a glimpse of the top over the blinders, became so alarmed as to defy all control, kicked clear of the carriage and ran away; was as usual gentle and fearless to an open buggy, but would not bear a top. A fine young stallion perfectly regardless of a locomotive, and apparently of everything else, was so frightened by the sound and appearance of an engine suddenly from behind, which was a position he never saw it from before, that he kicked himself clear of the wagon and got away, and would thereafter, not only kick in harness upon hearing the least rattle or unusual sound, but would not bear a locomotive. The impulse of fear first induced by the engine, prompted the kicking which brought the feet in contact with the cross-piece of the shafts, which increased his terror, and associating thereby the wagon with the engine, its rattling noise became a cause of repugnance as that of the engine or cars.

A high spirited, but gentle mare was taken to a smith shop. The smith struck her sharply two or three times, for not standing or submitting the foot to his satisfaction, which so frightened the mare that she would not allow any one having a leather apron on to go near her, or allow her feet to be handled. Have frequently found instances of horses being gentle single, but vicious and unmanageable double, and gentle double, but not single, etc., etc.

These peculiarities imply the necessity, as experience proved, of forcing an understanding of the object from every side, and in every manner it is usually seen by him when in use.

If, for instance, a horse is afraid of an umbrella while in harness, he may be taught to care nothing about it out of harness; but if not taught to feel and understand its character in harness, would be apt to

be as much frightened at it in that position, as if he knew nothing about it.

This seems to puzzle many well-meaning men, and is often the cause of much disappointment.

A horse that is afraid of an umbrella, is brought forward to illustrate the management of such habits. In a short time the horse will bear the umbrella over and around him in any manner without seeming to care anything about it. The owner is pleased with the belief that his horse is broken; when in harness at some future time, he raises an umbrella behind the animal and is astonished to find him as bad as ever, and he naturally condemns the instruction as of no account; and indeed without reflection, this would seem to be about the truth of the matter. But when it is seen in the first place that it is often necessary to repeat the lesson several times a day, possibly for days, to fix an impression of the harmless character of the object; and in the second place that it is often necessary to give the horse the same understanding of the object in harness, that expecting the animal to be broken of the habit by a single indirect lesson, only tends to defeat success. For without ability to control the horse, every attempt to force upon him the object of aversion, only inspires greater resistance, because taught to a still greater degree to resist control, and a sense of freedom always tends to increase the animal's fear of the object. Now the efforts of the owner to control the horse directly in a position of so great a disadvantage, may produce exactly this result, and then from an ignorance of the cause of failure, it is believed impossible to make the horse gentle.

The main point of success in overcoming nervous sensibility, is in the tact of preventing the horse from becoming frightened from any cause, and when excited with fear of an object, as circumstances and opportunity will permit, to let him see and understand

that it is harmless. Let the object be seen and brought to his notice from different directions, and above all, the lesson must be repeated day after day, if necessary, so long as the animal shows fear of the object, otherwise the efforts will be useless and the horse made more timid and unmanageable than before.

The Management of Old Horses of this Character,

is virtually the same as that of colts. The only difference being in the greater restraint necessary to overcome the extreme resistance a great sense of fear may cause. A horse excited with great fear of an object, may not only try with all the energy of despair to free himself from restraint and get away, but fight most wickedly. Indeed, I regard a horse feeling extreme fear of an object, as being one of the most difficult and dangerous to encounter. He is likely at any instant to throw all his strength into the contest for freedom, and if held near the object may strike and kick at it with all the recklessness of despair. The control of such should be made as severe as possible, by thorough training with the war bridle (small loop.) Then tie down as tight as possible. The horse will be so disconcerted and disabled by this, that he is unable either to wholly concentrate his attention upon the object, or resist the severe restraint upon the mouth. If an umbrella, robe, or anything of the kind is the cause of fear, it can now be brought gently to his notice, and as he will bear, against the nose, head, neck and body as before described.

Should the animal prove to be not only extremely nervous, but vicious, tie the head to the tail, as explained for balking, etc., and keep the horse moving until resistance becomes impossible, and while tied, forcing an understanding of the object, gradually giving freedom, and repeat the lesson as may be necessary. If a top wagon is the cause of fear, get thor-

ough control of the mouth with the war bridle, then gradually work the horse up to the wagon rattling it, etc. Then lead him into the shafts, and, as he will bear, turning him around and backing him into and pulling the shafts upon him, raise and lower the top, etc., repeating the lesson as may be found necessary. When the horse is attached to the wagon, the top should be lowered, and the greatest care should be taken to have the harness strong, and every detail of the hitching perfect, and to guard against possible resistance or accident, attach a strap to one or each of the fore feet, with the ends carried over the belly band back to the wagon and hold with the reins. Such a horse, it must be remembered, is likely to do his utmost to get away, and as it is not always possible to control with the reins, the advantage of controlling by the feet becomes indispensable. The horse must now be driven and be made to submit to control, with the top up or down at will, until regardless of it and is perfectly manageable.

HABITS OF THE HORSE.

Turning Around and Running Away.

Some horses get in the habit of turning around in the road and running headlong in the defiance of the control of the reins when excited by fear of an object or sound. To break such, get the utmost control of the mouth with the war bridle, and carry out this advantage by keeping the head checked high and using a sharp, strong bit that gives purchase enough to jerk the horse off his feet at the least intimation of resistance. Now be gentle and prudent in overcoming the fear of the animal, as explained in other cases, if necessary.

Horses often resist with so much energy in this way from a sense of a great fear, or some particular object of sound, most commonly that of an engine and cars, that all sense of restraint is lost in the struggle to get away. To overcome such resistance, we use what we denominate

Mechanic or Safety Shafts,

made as follows:

Get three scantlings or poles of good tough timber of about four inches in diameter, and fourteen feet in length each. Put down two of these, so as to bring them two-feet apart and thirteen at the other. Now lay the other pole across on the ends of the others widest apart, about six inches from the ends. Mark and halve them together. Then bore a hole through both pieces at each corner so fitted, and bolt them firmly together. To fix the other ends, get a piece of tire iron, four feet long, and bend it in the

form of a breast collar, the rounding side in, so as to have each end extend back on the inside of the poles, ten or twelve inches, and fit up nicely to the wood. Have two holes punched or drilled through each end of the iron, by which to bolt it firmly to the poles. Then drive staples into or near the ends.

To finish the other ends, take two pieces of iron about a foot each in length and an inch in diameter, flat one end and punch through two holes. Work down the other ends to a sharp point; bend down the ends so sharpened about six inches, in the form of a half circle; bolt these irons under the ends of the poles, the sharp end pointing down and back, forming dogs, something like those on the end of sleigh runners, to prevent the sleigh running back. Now harness your horse into this arrangement, taking the precaution to wind the irons across the ends with an old piece of cloth and strengthening the harness if at all likely to break, by tying a piece of rope around with the breechen and around the body as may be thought necessary. Though perhaps the best way to hold the shafts, as we call them, nicely up to the neck, is by bringing a strong rope or strap over the neck and fastening around the iron near the wood. It must be remembered that before hitching the horse into this, he should be subjected to the most thorough training of the mouth with the war bridle. When hitched, get behind the cross-piece, holding the reins. If the horse now attempts to go back, the iron hooks on the ends of the poles settle into the ground, making it impossible to do so. Should he attempt to turn short around, the pole extends out and back from the shoulders at almost right angles, preventing a movement in that direction. If he attempts to rear, the restraint of the breechen becomes a lifting lever upon the hind parts, and the horse is at once disabled. Now drive the horse forward to the cars, putting your foot on the cross-piece and holding the horse to his position when showing fear,

to the end of forcing him up to the object of fear.

It must be remembered that a horse once really frightened at an object, which is likely to produce such great and sudden fear as an engine or cars, can seldom with anything like ordinary effort, be made so regardless of them when suddenly and unexpectedly moved near him, as to be made at all safe for family driving, or purposes involving much responsibility when brought into possible proximity to them. But if the animal is much prized, and rendering him safe and gentle much of an object, go to work with a will, following up one advantage after another, driving the horse often and perseveringly around the cars until successful. But it must be remembered that fear is the least voluntary and least controllable to the reason of the feelings, when once fully aroused and when the nervous system is prostrated by its force and continuance, it is the most difficult of all manageable habits to overcome. There is a limit to the advantages of skillful management, in this respect, so far as absolute success is concerned. It is not possible to make a horse of any spirit absolutely fearless, and the consideration which should govern an honest desire to hit the mark best, is to give a correct understanding of what it is practical to do. My advice is, if the horse is really bad, do not trust yourself or family behind him. The risk is too great to be borne, or advised to be hazarded in the hands of most men.

Kicking in Harness.

It is very essential, in the first place, that the mouth is made as manageable as possible to the control of the bit. An unmanageable mouth is one of the great causes of mischief in many ways, and none more than in kicking. If there is good control of the mouth, so that you can attract and hold the horse's attention and throw the head up the instant

there is the least intimation given of kicking by a sharp jerk on the reins, you can, in almost an instant prevent the developement of this intention. Put on the war bridle (small loop,) and work up the mouth thoroughly. If the horse is dull or hard mouthed, change the small loop for the large one, or colt's bridle, which has a more severe and positive effect upon the mouth. Repeat the lesson two or three times, or until the mouth is made perfectly manageable. Then use a short snaffle bit that will enable the ability to retain this advantage.

If the horse is young and not very bad or determined in the habit, put on the foot strap, having the war bridle on. Now work the horse up on the floor, tripping and disconcerting as in teaching the colt to submit to being touched with straps or anything else about the legs. When there is submission to being touched in this way, hitch to a wagon and hold the foot strap as a rein while driving. Now trip and disconcert the horse, by taking and giving the foot at pleasure, and so disabling him at each indication of resistance until gentle. This training should be thorough, and repeated until there is perfect submission. Now check up short and control and hold the horse from kicking by the restraint and control of the bit. If the horse is slow and kicks only once in a while, take a rounded strap or strong half inch rope about twenty feet in length, place the center of it on top of the head, pass both ends through the rings of the bit, then through the gag runners and back through the terrets. Have a ring fastened to the back strap of the breechen, back of the hips, put both cords or straps through this ring, pass down on each side and tie short enough to the shafts to bring the head well up. Everything should be so strong as not to endanger breaking. The horse is now nicely checked up, with the restraint so connected that at the least effort to throw the hind parts up, the reins are so pulled upon as to throw the head up in-

stantly, and the horse is thereby disconcerted and disabled from his purpose. A leather strap that has been nicely fitted and rounded at least from the head to hips, adds to the appearance of the harness, and shows the apparent intention-only of a check. If the horse is a reckless, determined kicker, more severe and positive measures of restraint and reproof are necessary.

Put on the war bridle, (small loop,) and work up sharply right and left. If the mouth is hard and unyielding, change for the large loop, or colt's bridle, and work up three or four minutes. Then let the horse rest a few hours, and repeat until the mouth is sensitive and manageable to the bit. Next put on the war bridle, (small loop,) tie a piece of rope tightly around the body, just back of the shoulders. Put a strong and well fitting rope halter on the head, tie a strong two-inch ring on the end of the hitching part, which should be of a length to extend between the fore legs, over, and just back of the belly band. Have made two strong straps, with rings in them, of a suitable length, to buckle around the hind legs above the fetlocks. Now drawn down tightly upon the war bridle and tie into a half inch. This will make the horse stand quietly while being handled behind. Now buckle the straps around the hind legs above the fetlocks. Then take a piece of strong Manila rope, long enough to extend from the ring on the end of the halter back to the belly band, to each hind foot. Pass the end of this through the ring to the center, and tie each end carefully into the ring on the straps around the hind legs, the whole so arranged in length that the horse can travel easily and naturally. Now untie the war bridle and let the horse jump and kick. If necessary restrain and punish with the war bridle. If the horse is a reckless, determined kicker, make him kick all he will, then treat him gently. If the horse submits pretty well, the straps may be taken off, and let him stand quietly

for a few hours. The folly should never be indulged of trying to see if the horse would kick after the straps have been taken off. Then put on the straps, etc., as before. If the horse does not kick treat him gently; if he does, force sharply, until there is submission. If the horse is a bad kicker, leave the straps on while standing. When he will bear being moved around in the yard without kicking, would hitch to a wagon and drive, repeating thoroughly, day after day, until there is no disposition to kick. Then take off the straps, and, when driving, check up short. The best and most natural check for this purpose is made by passing the check reins through the rings of the bit and fastening to the check pieces of the bridle up near the ears, or passing up and untying the ends on top the head, back of the ears. The gag-runners ought to be well up near the ears, and strong, or use the Jackson form of check. Checking up the horse in this way, short, with the control and restraint of the reins, by pulling upon them sharply at the instant there is an indication of kicking, will now, with care, enable the advantage of keeping the horse from kicking.

Bad kickers must be handled thoroughly, and with great care to be successful. It is necessary in some cases, to leave the straps on a week or two, and then the control or reproof upon the mouth should be carried out in the most careful and thorough manner. The mouth is the grand point of control in most all cases, and especially in the management of the kicker is this essential. The mouth should be worked up once in a while with the war bridle, to keep it sensitive, and fix upon the mind a sense of submission to the restraints of the bit.

When the horse is very excitable and nervous, this is a difficult habit to break up. If the training is careless, and is not made thorough, little advantage will be gained in the management of these bad kickers. With the most skilful and thorough treatment

it is hard enough, and indeed almost impossible, in many instances, to make such horses practically safe.

Kicking and Striking while Shoeing.

Some horses have a peculiar aversion to having their feet handled, and if once roused to resistance, from any cause, are apt to become pretty determined in the habit. If the foot is pulled away when taken up, or the horse is excited and injured in some way, while the foot is held, the fear of injury is produced and associated with the requirement, which by the usual pulling, hauling and kicking practices of the shop, make the horse worse. The least intimation of ability to resist after being taken in hand, always inspires the horse to renewed confidence and resistance, and if there is not ability or perseverance enough to enforce the end of perfect submission after trying to do so, the horse is only made worse, more reckless and determined in the habit. As the object is to break up the habit, the energies must be concentrated as directly and forcibly as possible, until the horse is so disconcerted and shaken in the confidence of his powers of resistance, as to yield to restraint and submit the feet as required, when the submission must be made permanent by patient, gentle treatment. The treatment here given applies to the worst cases, though we have found it necessary in some instances to resort to more severe treatment, but the exceptions are so rare, requiring the extreme of force, and may be the cause of accident to others, that we do not think it advisable to give more than we would believe most practical, with rare exceptions.

If the horse kicks and resists, having the hind feet shod, put on the war bridle, (small loop,) leaving the bridle or halter on. Take a firm hold of the strap, or rein, about six or eight inches from the head, grab the hair of the tail, and swing the horse sharply four or five times around. This will make the horse diz-

zy. Now pull the cord right and left six or eight times, as quickly and energetically as possible. Then tie the long strap around the neck, near the shoulders, in the form of a running noose; pass the other end back between the fore legs, around the hind leg, below the fetlock and back through the loop, round the neck, drawing it through short enough to bring the foot well forward. Pass the end back under, to prevent sliding, and retain in the hand. The horse will now be very likely to struggle to get the foot loose. Should his resistance be so great as to endanger injury, you can give loose on the end of the strap. When the horse ceases trying to get the foot loose, rest the left hand upon the hip, with the right pull on the foot forward and outward. If there is great resistance, pull the horse around by the head, which will enable you to keep him in such limits as you wish. When the struggle ceases, go back and handle as before. When the foot is submitted to the hand, while held to the restraint of the strap, put the cord well back upon the neck, draw it down tightly, and tie into a half hitch. Then pull upon the foot with the hand as before. If not resisted, untie the strap and take the foot in hand gently. Put it down and take it up, rubbing and handling until there is entire submission. Then carry it back with the right hand, keeping well forward out of danger, by resting the hand upon the hip, and pulling and yielding to the foot until manageable. Now pass the left hand down to the inside of the leg, and take it adroitly from the right and carry it back gently; put it down and take it up once or twice. Then hammer upon it lightly, gradually increasing, until the foot is submitted as required. Now untie the cord and tie it a little longer; go back and handle the foot as before. If submitted, untie the cord, holding the end in the left hand, and handle as before. If there is an intimation of resistance, tremble on the cord, which will keep attention on the mouth and remind

of the previous control until the foot is submitted without restraint. Manage the other hind foot in the same manner. Handle the horse in this way three or four times, with the difference of lessening the severity force as there is submission, until the feet can be handled without resistance or fear.

When the horse is taken to the shop to be shod, put on the bridle, stand at the head, and at the least intimation of resistance, tremble the cord; if necessary, even tying down pretty short, as at first, but care must be taken in no instance to keep the cord tied down longer than two or three minutes, as the pressure is usually so great upon the mouth and neck as to prevent circulation. The smith should handle the foot gently, hammering lightly at first, gradually striking harder, as there is submission. The foot should not be held up very long at a time, and there should be especial care to speak encouragingly to the horse, rub the head and neck, etc., after doing well.

The object is to fix the impression that submission is the only way to evade the pain and force of restraint. If the horse strikes and resists shoeing the fore feet, turn him around and train with the war bridle, as before explained. Then put the long strap over the back, and attach the end to the foot. Pull the foot up and hold it by this strap, turning the horse around by the head if necessary, until the foot is submitted. Then pass the end of the strap around the foot and tie fast. Now pull right and left four or five times energetically with the war bridle, put the cord well back upon the neck and tie down tight. Handle the foot, and hammer upon it. If there is no resistance, untie the strap and take the foot in hand and hammer upon it lightly. If there is no resistance, untie the cord, caress, and while holding the end in the hand, take up the foot quietly. If there is no resistance, put it down almost immediately, caressing and speaking kindly, as before. In this way gradually do and require more, until the foot

can be taken up, handled and pounded upon as may be necessary, without resistance; but at the least intimation of resistance, punish sharply. This character of resistance is not very common, but is usually persistent and dangerous. When an extreme character, train with the war bridle thoroughly and perseveringly, while the leg is tied up, until the horse is pretty well exhausted. If a colt of a sanguine temperament, not accustomed to being handled much, tie the bridle rein into the tail as for balking, and keep the horse moving, until his reckless spitefulness wears out, and he submits the foot to be handled as required. Then untie and handle gently. A colt though apparently very bad, will yield readily to this method of management. This treatment is pretty effectual, if made at all thorough. But it must be remembered that adroitness and care in guarding against needless haste and severity, is as essential to success, as the advantages of force. Most horses of this character are excitable and nervous, and consequently easily roused to resistance by careless, harsh treatment. If the horse strikes badly, and it is only desired to put on the shoes with safety, tie the foot up, pull sharply right and left upon the war bridle until the horse is pretty thoroughly disconcerted. Then keep the foot tied up while putting on the shoe.

Running Away

Is the result of a sense of freedom, and want of control of the mouth. The horse throws the momentum of his strength against the bit, and if successful in resisting control, the habit is induced. It is true the resistance may be caused by the animal becoming frightened; but this only points to the principal cause of weakness, the feeble control there is over the mouth. Train with the war bridle (small loop) four or five times. If the mouth is very unmanageable, change for the large loop, and work back upon the mouth of it pretty thoroughly. This lesson must be

repeated until the mouth is sensitive and manageable to the bit. Then hitch the horse single, using a small steel snaffle-bit, and having on the foot-strap. Move the horse gently; after going a few rods pull on the foot-strap, saying, "whoa!" Trip and stop the horse in this way a few times, by way of feeling of him; then move him off sharply and jerk upon the reins, saying, "whoa!" in an excited manner. Repeat in this way making the horse go slow or fast, making him stop at will. You are now in a position to learn your exact control of the mouth. If there is prompt and unconditional submission to the control of the bit, you can trust to the reins; if not, that point must be attained by greater advantage of the bit. Take two straps, each about a foot in length, with a buckle on one end and a ring on the other. Run the buckle ends through the rings of the bit, and buckle on over the cheek pieces of the head-stall, or the cheek pieces may be taken out and these pieces put in place of them. When arranged in this way the rings must be so large as not to go through the rings of the bit. Fasten the reins to the rings on the straps. As the lines are pulled upon now the bit is forced into the mouth, which will greatly disconcert and disable the horse from his purpose. Now drive as before, stopping and starting at will. If there is decided willfulness, or a determination in the horse to resist control, be decided and positive. I have had instances of such horses trying to run away in defiance of the control of the foot-strap. If this temper is anticipated put a strap on each forward foot at first, then if there is an attempt to rush ahead when the foot is drawn up, pull on the other, which will stop him at once. Care should be taken, when this is found to be necessary, to select a sandy or sodded piece of road to prevent having the knees injured. Now drive the horse fast or slow, as you please, and repeat, stopping him at will, until promptly obedient to the control of the reins.

If the horse runs away from fear of some object or cause of excitement, drive around and near such, stopping and starting the horse, until there is willingness to submit to restraint and look at things without attempting to get away. Remember, also, the slower the horse is moved the less liable he is to become frightened, and the easier to control his actions.

The mouth should be kept thoroughly manageable by a sharp lesson with the war bridle two or three times a week, for a month or two.

If the horse runs away in double harness, work with the war bridle, as before explained, and drive with the foot-strap, and repeatedly, until there is submission to the control of the mouth. The main thing is to get such control over the mouth as will insure ability to control the actions of the horse by the bit. This is the ultimate object and must be aimed at from the first.

It is the worst of folly to hazard life and property behind a horse that has once run away until thoroughly broken of the disposition to resist. If the horse is old and determined the training must be made very thorough, and repeated until there is certainty of control with the reins under any circumstances of excitement. Short of this the horse cannot be driven with safety, and had better be put off or used for purposes not involving danger.

It is very remarkable what a powerful effect training will have on the mouth, and how strangely stubborn and unmanageable a horse may become after once learning to resist the restraint and control of the bit.

A strong, high-tempered horse nerved to the contest of resistance in this way, is not by any means to be regarded lightly or easily controlled. The greatest care should be taken to have the harness and wagon used, safe and strong. The contest may be desperate, and it is part of your strength to provide against

accident. The great trouble with most people of even good experience with horses, is that they do not see the necessity and advantage of being thorough in changing this habit. Better do much more than is necessary, and be successful, than hazard the possibility of failure by not doing enough.

A very good way, although not so practical, to manage a desperate runaway horse is as follows: Have a little ring or loop attached to the head-piece of the bridle, just back of each ear. Provide a strong cord, pass one end through the near loop from the top side, pass down under the throat up through the loop on the opposite side, and tie into the other part back of the head. The cord now forms a loop that draws directly upon from the wagon, when the other end is intended to be held, with the reins in your hand. When the horse attempts to run you can instantly, with the greatest ease, prevent his breathing, and he must stop, or soon fall down from exhaustion. This is a terrible means of restraint and punishment, and is pardonable only when the horse is so desperately reckless as to resist other means.

Turning Around While Driving.

This is a serious and dangerous habit. The limited advantages it is possible to exercise over the mouth sideways while driving, makes it difficult to control the resistance of a determined, reckless horse, when excited to opposition in this way. The horse is usually excited to resistance by being frightened in some way, and when there is, it is most always without warning, and with all the energy of despair. Without a sense of ability to control the mouth in the most thorough and convincing manner, it will be impossible to break up this habit. It is easy enough to prevent the horse turning around by other means, but there is so little disposition to use anything requiring any trouble to obtain or use, that they are

not practical. Get the greatest possible control of the mouth with the war bridle (small loop.) To do this well, may require three or four thorough lessons. If there is not ability to control the horse with ease by the ordinary form of power bits, use one made as follows: Let the mouth pieces of the simple snaffle form extend out two inches from where the rings for the reins are, with rings on the ends. Now attach a strong, double strap around the nose, from one inside ring to the other, quite short, but not tight. Buckle the reins into the rings on the ends. When the reins are pulled upon now, the joint in the center is thrown forward against the roof of the mouth, the strap around the nose being the fulcrum, while the great length of mouth piece outward, from where the strap is fastened, gives all the advantage of power necessary. It would be better perhaps, by having two joints at the center, about an inch apart. The power over a mouth by a bit of this form is very great. It gives the power needed to bring the head sideways. Associated with this habit is usually that of

Running Back.

To break up this habit, there must be established a thorough fear of the whip, so as to induce going ahead, whenever commanded. Put on harness and tie the tugs into the rings of the breechen rather short. Now drive around with the reins, giving a sharp cut with a good bow whip around the legs, once in a while, if not prompt. As the horse learns to spring ahead a little on the lines, gradually repeating until he will pull quite hard on the bit to go ahead. Make this as thorough as possible. In driving, repeat, and carry out this, going ahead promptly, whipping up sharply once in a while if necessary. This purpose can be carried out with more certainty in driving, if the foot strap is used.

It is scarcely necessary for me to add, that to in-

sure success, requires prudence and thoroughness. Persevere until the horse is made manageable under the most exciting circumstances. If the animal is reckless and dangerous, the mechanic or safety shafts described to control horses afraid of cars, etc., can be used.

Pulling Hard on the Bit.

If the horse is of a moderate character, the resistance proceeds from a want of sensibility in the mouth. Work the mouth up with the war bridle, (large loop) until made sensitive to restraint. Whenever there is a disposition to pull a little too hard, give a quick raking pull on the lines, repeating as may be necessary. Repeat the lesson of working up with the war bridle three or four times, to fix the impression of submission to restraint. As there is now a disposition to pull too hard while driving, give a quick, raking pull on the reins, which will soon break up the habit. If the horse is sensitive and energetic, establish, if possible, a feeling of submission to restraint by careful and thorough training with the war bridle, both small and large loops. Use a small snaffle bit, and at each effort to rush ahead, give a sharp side pull right and left on the lines, as before explained, giving loose immediately, and so repeating at each effort to pull ahead, being careful not to show any excitement. The horse will soon learn to avoid the pain of these raking pulls, by going slower. Great delicacy and patience are necessary to break up this habit thoroughly. The natural ardor of the horse forces resistance to restraint. Excitement increases this tendency, and if once established, the horse will pull a bit that will bruise and cut the mouth in the most severe manner. Talk gently and encouragingly to such a horse, but reprove sharply, as before explained, for the least disposition to lug. This will excite the horse at first. He may dance and fret but no matter. At every attempt to pull, set him back.

By being patient and persevering in reproving and forcing obedience to control, whenever there is an impulse to resistance, with rare exceptions, the horse will soon learn to yield readily to the most gentle control of the rein. If the horse resists this treatment, drive with the purchase strap, as explained for the control of runaway horses.

Will not Back.

Put on the war bridle, (large loop,) step in front of the horse, and press back upon the bridle quietly. If the horse goes back a little, caress; if not, after a short interval, press a little harder, being careful not to be too hurried or excited, as by too great an effort to force at first the horse is apt to become so greatly excited, and the sensibility of the mouth in consequence, so soon blunted, that the horse could scarcely be made to yield to very severe training. Continue at slow intervals, repeating the pulls upon the mouth caressing and speaking encouragingly for the least effort to go back but making the power of the bridle felt. Some horses do not seem to know how to back, or are so dull and sulky as to resist all ordinary effort. When the resistance is of this character, throw the short web over the back, and tie the end to the off fore foot. Pull the foot up with this web, then let it down gradually, and while doing so, press back gently upon the bridle. Holding the the foot and letting it down in this way, brings it down back of the other, which weakens the resistance, and by a little effort will induce the horse to move the other foot to an equal distance to regain his balance. Repeat this, until the horse will move back quite easily; then follow up the advantage by control of the bridle, or get an assistant to attach a web or cord to the foot, and get behind the horse and pull the foot back, when you can press as before, gently upon the bridle. To work easily and thoroughly, it is best to stop as soon as the horse becomes much excited or sulky, for an hour or two; then re-

peat. When the horse will go back as required, then back while hitched to a wagon, first a little down hill, and then on a level, gradually in positions requiring more strength. Work gradually but thoroughly, giving the horse time to understand what is required, thus gradually pressing him to do more, until he has learned, and is willing to use his strength in this way.

Pulling on the Halter.

Tie a piece of rope around the body, back of the shoulders, in the form of a girth; put on a strong rope halter, with the hitching part about ten feet in length. Lead the horse into his stall, and quietly pass the hitching part through the ring or hole in the manger, and pass it back between the forelegs over the girth, and around the fetlock, long enough to enable the horse to go back four or five feet before feeling restraint. When all is ready, strike upon the rope fifteen or twenty inches from the head, with a pole in an excited manner. The instant the horse settles back to pull, the restraint comes equally upon the hind foot, which will so disable and disconcert him, that after a hard pull or two, he will jump ahead. If the horse is of a slow, determined character, force back with energy. The instant the horse comes ahead, stop and caress. Then push him back by the halter and at each repetition of settling back to a pull, make him pull as hard as possible.

This lesson must be repeated so long as there is the least disposition to pull. Hitch in the stall in this way for a few days, and, as may be necessary to hitch to other places, attach to the fore leg above the knee. The horse should be hitched in this way, until there is certainty of his not pulling.

Almost any way of bringing the restraint upon the hind parts if carried out with energy and prudence, will enable the changing of this habit. The halter can be attached to the hair of the tail, a piece of rope brought under the tail in the form of crouper, tied

together over the back, then brought forward on each side of the shoulders, and fastened to the end of the hitching part of the halter, would be perhaps a better way of doing this. When the horse is of a moderate determined character, the great point of success is in frightening and forcing back with energy, when hitched. Colts of a sanguine temperament, not accustomed to much restraint, are by far, more reckless and determined than old horses. While they yield more readily than the old horse, they are more reckless at first, and would be apt to pull themselves down. Whipping and frightening the old horse with energy at the instant of his pulling, prevents this; but the colt is not likely to respond to the force of any excitement. He seems to lose all consciousness of feeling in his strange desperation, and you would be defeated.

Instead of tying the hitching part to the leg, bring round the leg and retain in the hand. Now, if the horse pulls too recklessly, give loose on the halter, then lead him up again and repeat until the resistance is so weakened that the halter can be attached to the foot with safety. It is always best to weaken the disposition in the colt to pull, by training with the war bridle, until there is prompt obedience to its restraint, when pulled upon ahead, as for bridle pulling.

Pulling on the Bridle.

Put on the war bridle (small loop) and bring the part over the neck up to the ears. Now step a little forward and sideways and give a quick energetic pull on the cord. In a few seconds, give another sharp pull, repeating at short intervals until the horse comes ahead a little. Immediately loosen the cord and caress. Then repeat the pull and so continue for four or five minutes, when the horse should be allowed to rest an hour or two, and again repeat the lesson until the horse will come ahead promptly when pulled upon.

Now run the cord through the ring of the hitching post, having the horse stand three or four feet sideways from it, and give him a sharp pull. Should he come up to the post promptly, loosen the cord upon the head and caress; repeat pulling until he does. When the horse comes up promptly, get some one to frighten him back; should he pull hold against him until he comes up again, and so repeat. It may be necessary to repeat this lesson two or three times to break up the habit thoroughly. Make the lesson of leading ahead very thorough. If the horse does not lead well, put the cord down on the neck and pull sideways, right and left, a few minutes, then bring the cord up to the ears and pull ahead until there is prompt obedience to the least restraint upon the bridle.

Pulling on one Rein.

Put on the war bridle (small loop) and pull in the opposite way, until the horse will come round promptly. Make this thorough by training, etc., two or three times. Use a small snaffle bit and at the least intimation of resistance, pull on the line two or three times sharply. If the horse does not yield to this, put on the war bridle and give a few sharp side pulls as before. When the horse is roused to resistance, after there is an effort to change the habit, the training must be continued until there is unconditional surrender.

Bad to Bridle.

Put on the war bridle (small loop,) pull right and left a few times and tie down short. Now handle the head quietly, rubbing the way the hair lies, gradually working up to the ears. As there is submission tie the cord a little longer. Then hold the cord in the hand, while the other is passed over the neck; as this is done press down a little with the hand over the neck and head and pull gently with the other on the cord. When the head is yielded in the

least, ease on the cord and caress and so repeat until the head can be handled freely.

Now tie down short enough to prevent the head being thrown up. Take the bridle in the right, bring it over the head and neck gently; with the left hold the bit lightly between the fingers. Press down with the right to hold the head steady, while the bit is being worked in the mouth gently with the left. If the horse does not open his mouth freely for the bit, press the lower lip against the teeth with the fingers, which will cause him to do so readily. Now gradually reduce the restraint, until the bridle can be put on easily without being tied. If the horse runs back and strikes, back him into a stall, put on the girth, press the cord between the legs over the girth back to the head and tie into the part around the jaw. Now put on the bridle gently. It requires much firmness and prudence to manage horses of this character well. They are usually excitable, and, however severe the restraint at first, it must be removed and the fear or disposition to resist, overcome, until the head can be handled and submitted as required. If the horse is disposed to resist the bit and it is simply desired to put on the bridle, pass the right hand under the neck around the nose and hold it firmly, while the bit is put into the mouth with the left, then bring the head up gently and put it over the ears. If there is much resistance at any time, it ought to be immediately controlled by the restraint of the bridle.

Bad Biters.

An old, bad horse of this character cannot be made reliably gentle, by the most thorough training. The least want of watching seems to be forever encouraging the horse to satisfy his propensity; and however through the training, if there is not watchfulness, the horse will be continually encouraged to break over, and persevere in the habit. The main point of success is to fix, and hold the horse's attention. Work

up thoroughly with the war bridle, then reprove sharply for the least attempt to bite. Let the actions and language indicate confidence and power. In approaching the head look at the eye and speak sternly saying, "Take care, sir!" or something of the kind. If the eye is roguish, and the ears are thrown back, bring the hand well up on the head, then down to the nose-piece of the halter, and grab firmly where the cheek-piece is attached. If there is an attempt to bite now, the hand is carried up with the head, and is held out of reach of the mouth. If the horse is not very old, with thorough training and good management the habit can be held in check, and possibly broken up; but an old, bad horse of this character cannot be made safe. So long as there remains a desire to resist, the horse cannot be regarded broken. The intention is most always held latent, liable to be developed at the least indication of weakness; and if the horse is allowed to bite in a determined manner, without instant and positive reproof, training will do but little good—and in fact, the horse is liable to become worse by the experiment.

Pawing in Stalls.

Get a piece of chain about ten inches in length, run a short strap through one of the end links, and buckle it around the foot above the fet lock; or a piece of light chain can be fasted to a small block, and attach it to the foot in the same manner. When the horse attempts to get paw, the clog or chain rattles against the foot, and prevents a repetition of the practice.

Getting Cast in Stall.

Drive a staple into a beam or the floor directly over the horse's head, as he stands in the stall, to which attach a strap or piece of small rope of sufficient length to extend to within fifteen inches of the floor. Before retiring for the night, attach the other end of the cord or strap to the top of the halter, making it

just long enough to allow the horse to put his nose to the floor. Being now unable to get the top of his head to the floor he is prevented from rolling.

Running in Pasture and Jumping Fences.

Put on the horse a nicely fitting old five-ring halter; get a piece of thin leather from twelve to fourteen inches square (an old boot leg cut open is the best,) cut a hole in each corner of this leather. Now tie two corners up to the cheek piece of the halter, near the ears, with a couple of strings; tie the other corners to the cheek pieces below the eyes in the same manner. This brings the leather in front of the eyes with its corners so drawn back, above and below, as to prevent the horse looking forward, above or below the eyes, though free to see in any other direction. He will not trot or run or jump, because unable to see ahead, and is in consequence afraid to do so.

Breaking up While Trotting.

If the horse cannot be held down to his gait, when forced on the trot, put on a light web halter. Have fitted a nice, strong strap, long enough to extend from the jaw to the belly-band of the harness, one end arranged with a buckle so as to enable taking up, or letting out to fit, with a two-inch ring stitched into the other end; attach this to the halter back of the jaw, run the other end back between the legs, over and just back of the belly band. Buckle two nicely fitting straps with rings in them, around the hind legs above the fetlocks. Now take a strong piece of half inch rope and run it through the ring on the end of the halter strap, and tied the ends into the rings in the straps around the hind feet, regulating the length so as to enable the horse to move easily and naturally, but not longer.

The horse is now free to trot, but the instant there is an effort to run, the connection between the feet

and head is shortened, and the head is pulled back to a corresponding degree with the feet. The horse will very soon learn this, and fear the effect of breaking, so much so as to hold to the trot at all hazards.

The horse should be exercised and driven with this means of restraint until he learns to strike out, and there is ability to hold him down to the top of his speed.

To Add Style.

Put on the war bridle, (large loop) step in front, holding cord in the right hand, give a slight pull. The horse will usually throw the head up, as the effect of the restraint is back and upwards, but if the nose is given back towards the breast, reverse the pull by throwing the hand up. Repeat this until the head is thrown up promptly to the least pull, either on the cord or halter.

By making this lesson thorough, the horse can be so fixed in the habit of throwing the head up, by being pulled upon, that while driving, the head can be thrown up at will, by giving a short pull on the reins.

Throwing the head up gracefully, when pulled upon with reins or by halter, is a part of the object of biting.

If the nose is thrown out, pull down and back steadily, but firmly. As the horse yields, give loose and caress, repeating until the mouth is given back promptly. In driving to harness, have the martingales a little short, using them so, until the mouth is submitted to restraint easily and naturally. Now gradually add more style, by pulling on the reins a little, and repeating as the head is lowered in the least, until it is not only brought up, but back, as required. If not successful in this, put on the bridle as before, and work up with it until successful, then gradually, while driving, bring the head up with the control of the reins.

TEACHING HORSES TO DO TRICKS, &C.

Do not hurry your horse too fast in his tuition. When it is desired to teach him to do anything, begin moderately and thoroughly—go on the slow, sure principle. If you undertake to learn your horse too much, or too fast in the start, or indeed at any time, you only confuse and discourage him. Do so much as he can comprehend and appreciate, and daily progress.

Teaching the Horse to Follow You.

If it is desired to simply teach the horse to follow promptly with halter or bridle on, apply the war bridle, (small loop) when he comes round promptly, stand off a short distance and say, "Come here, sir." If he does not come to you, give a sharp pull, gradually changing positions and going a little farther.—When he comes promptly, caress; if not, pull sharply, repeating in this way until you can make him come to you promptly in any direction.

To Make the Horse Follow with the Whip.

The simplest and easiest way to do this is to work up sharply with the war bridle, and when the horse comes around promptly, take a short blunt whip, step up to the shoulder, and while holding the bridle loose in the hand, press the whip gently over the shoulder, and tap lightly on the off side of the head. This will annoy the horse and cause him to move the head a little from it towards you; instantly stop and caress; then repeat the tapping again. Should he attempt to run from you, hold him by the bridle. Repeat in this way until the horse will step towards you

promptly. Then touch the whip over the hip and say, "Come, sir." If he comes up to you or shows the least disposition to do so, caress, and so continue until he will come up promptly. Now step a little sideways and ahead, and say, "Come, sir." If he should step after you, caress; if not, touch the lash over the hips. In a short time the horse will learn to step to you and follow promptly. When he will do this, stand him in a corner of the room, stand a little in front of him and touch him lightly with the whip on the fore legs, and say, "Come here, sir." At the least intimation of coming, stop and caress. Then repeat, touching with the whip. If he moves to you a little, stop and caress, and in this way repeat until he will come to you promptly. Then get a little farther from him and repeat in the same manner until he will learn to hurry up to you to get away from the whip. Should he bolt away, put on the bridle and hold the end in the left hand. You can now hold him by the bridle when he attempts to run, until he finds he can not get away, and will come up promptly.

This lesson should be made very thorough before there is an attempt to take the horse out of doors, and then in a small yard. If this is not convenient, put on the bridle, having good length of cord, and hold in the hand loosely.

If the horse is of a bad character, the following method may be used: Turn the horse into a room or small yard well enclosed. Provide yourself with a good bow whip. The horse will feel uneasy and look around at you, and then perhaps for some place by which to escape. Walk up to him, and as he runs into a corner, apply the lash sharply under his flanks following him up and making the whip sting keenly for a short time. When he stops or turns his head toward you, stop instantly, reach out the hand, at the same time approaching gently. Should he run or turn around to kick, whip instantly as before, and so

continue until you can approach and caress the head and neck a little. Then say, "Come sir," at the same time touching the whip lightly over the hips. If he comes, or shows the least disposition to do so, caress and speak encouragingly. If he runs, whip as before, and so repeat until the horse will come up promptly when shown the whip.

As the object is to make the horse honest in following, it is necessary to make him feel that you whip him only for resistance, encouraging and flattering for every intimation of obedience, until he realizes his safety from the whip to be to come to you.

To Lie Down.

Tie the bridle reins into a knot back of the neck. Throw your strap over the back, bring the end back under the body and tie to the near foot, back of the fetlock. Now pass the right hand well over the back and take a short hold of the strap. Cause the horse to step toward you and pull the foot up. Then pass the left hand around the reins and pull down upon them in such a manner as to turn the head a little to one side, at the same time pulling down steadily but firmly on the strap over the back with the right hand. As the horse goes down gradually pull down on the near rein, so as to bring the head to the left, at the same time pressing down and from you firmly with the right, until the horse will lie down. Pass the end of the strap now through the ring of the bit and draw through gently; step over the neck, and as the horse attempts to get up, pull him back until he lies quiet. Rub and caress him, and after lying a few minutes say, "Get up, sir." Repeat in this way for a few times until the horse will lie down readily. Then while holding him on the near knee with the strap, hit him on the shin of the other with a little whip, until he will bring it under and lie down. After awhile he can be made to come on his knees and

lie down by simply pulling the head down a little, and hitting the shins with the whip, at the same time saying, "Lie down sir," repeating until the horse will lie down to the motion of the whip. This is about the easiest and most practical way to treat a horse to lie down. There is no danger of injuring the knees, or causing accident. If the reader should not get the sleight of laying a horse down in this way, cover the floor deeply with straw, tie up the off fore leg, using the strap on the near one over the back as before, until the horse will lie down, repeating as may be necessary, until the horse will lie down at the motion of the whip, as before explained.

To Sit Up.

When the horse will lie down promptly, put on him a common collar, and while being down, take two pieces of rope or anything suitable, about ten feet in length. Tie the ends around the hind feet, carry them forward between the fore legs, and bring them once around the collar. Now step on his tail, take the bridle reins in the right hand, while you hold the ends of the ropes firmly in the left. Give a little jerk on the reins, and say, "Get up, sir." Now, when the horse throws out the forward feet, and springs to raise himself on the hind feet, he finds himself unable to complete the effort, on account of the hind feet being tied forward under him, and so he brings himself in a sitting position. Instantly step forward holding the ropes firmly, rub and caress the head and neck a little for a few seconds, then as you see the effort to keep up becoming tiresome, let loose, and say, "Get up, sir." By repeating in this way a few times, the horse will soon learn to sit up when commanded, without being tied.

To Make a Bow.

Take a pin in your right hand, between the thumb and fore-finger, and stand before, but a little to the

left of your horse. Then prick him on the breast very lightly, as if a fly biting, which to relieve, he will bring down his head, which you will accept as yes, and for which you will reward by caressing and feeding as before. Then repeat, and so continue until he will bring his head down the moment he sees the least motion of your hand toward his breast, or substitute some signal which he will understand readily.

To Say No.

Stand by your horse near the shoulder, holding the same pin in your hand, with which, prick him lightly on the withers, and to drive which away, he will shake his head. You then caress as before, and so repeating, until he will shake his head at the least indication of your touching him with the pin; you can train your horse so nicely in this way in a short time, as to cause him to shake his head or bow, by merely turning the hand a little, or moving it slightly towards him.

To Teach Your Horse to Kiss You.

Teach him first to take an apple out of your hand. Then gradually raise the hand nearer your mouth at each repetition, until you require him to take it from your mouth, holding it with your hand, telling him at the same time to kiss you. He will soon learn to reach his nose up to your mouth; first to get his apple, but finally, because commanded to do so. Simply repeat until the horse understands the trick thoroughly.

To Shake Hands.

Tie a short strap, or a piece of cord, to the forward foot, below the fetlock. Stand directly before the horse, holding the end of this strap or cord in your hand, then say, "Shake hands, sir," and immediately after commanding him to do so, pull up on the strap, which will bring his foot forward, and which you are

to accept as shaking hands, thanking him for it, by caressing and feeding, and so repeat until when you make the demand, he will bring the foot forward in anticipation of having it pulled up. This is a very easy trick to teach the horse. By a little practice a horse may easily be trained to approach, make a bow, shake hands and follow like a dog, lie down, sit up, etc., which make him appear, both polite and intelligent.

How to Break a Horse from Jumping Fences.

Buckle with a strap with a ring in around above the fetlock joint, on the near fore leg, and one in the same place on the near hind leg, then buckle a girth around his chest—the same as a saddle girth, and tie a half inch rope in the ring of the strap on the fore leg, bring the rope over the girth, and back to the ring of the strap on the hind leg; tie it so that he can walk with it on, and he will jump backwards in the same field he starts out of.

To Break a Horse from Wind-Sucking or Cribbing.

Take a narrow fine-toothed saw and saw up between the upper and lower teeth, in the front part of his mouth, and this will stop him in a short time.

To Keep a Horse from Shoving Down Fences or Gates With His Breast.

Cut out of the harness a piece, in a half-moon fashion, so it will fit his neck and hang down over his breast in the shape of a heart, then drive tacks through that will stick through half an inch, then buckle a strap to each corner around his neck; tie a string to the strap on the top of his neck and back to a girth around the body of the horse so it don't drop down over his neck, when he puts down his head; every time he goes to the fence, he gets stuck; this will break him in a few days.

To Keep a Horse from Breaking Halters or Bridles.

Take a rope about twenty feet long, place the center of the rope under his tail, bring up over his rump in a shape of a crupper, twist three or four times, so it don't drop down over his quarters, then bring the ends forward one on each side of his neck and through the halter ring or through the rings of the bridle and tie him to a tree or post, then scare him and make him pull on it a few times, and it will break him so that he will stay broke.

To Break a Balky Horse.

Take a rope twenty-four feet long, place the middle of the rope under his tail the same as to break a horse from breaking halters, bring it up over his rump like a crupper, give a few twists, bring the ends forward, one on each side of his neck through the rings of his hames, where the breast chains rest in; then to the end of the tongue—this is in double-harness. Be sure to have your horse hitched equal or even, and then start, and your horse will pull every time. To work in a four-horse team would, perhaps, be the best plan; tie the ends of the rope to the stretchers of the front team, and he will always pull his share of the load, and break him of the bad habit entirely.

To Make a Horse Appear as if Blind Staggered.

Take a small rifle-ball, drill a hole down through the center; draw a string through and tie a knot on it; let the string be about five inches long; put the ball in one ear, push the string down in the ear so no one can see it, and he will appear to be the worst blind-staggered horse you ever saw. To cure, get hold of the string and pull out the ball.

To Break a Horse from Lolling His Tongue Out.

Have a straight-bore bit made five inches in the clear between rings. Make the bit square, round off

the corners a little, then drill two holes through the bit from the bottom side up. Then bend a wire in a half moon shape, the size of the tongue. Put the ends through the holes so that the wire is on the under side. Buckle the bit in the bridle, and when you put on the bridle drop the tongue through the wire and he can not get it out of his mouth, and will break up the bad habit entirely. The wire must be put in the center of the bit two inches apart—that is, the ends of the wire should be each one inch from the center of the bit.

American Horse Powder.

One ounce Antimony;
 One ounce Fluor of Sulphur;
 One ounce Salt Petre;
 One ounce Ginger;
 One ounce Gentian;
 One ounce Fenugreek;
 One ounce Rosin;
 One ounce Cream Tartar;
 One ounce Tartar Emetic;
 One ounce Alum;
 One ounce Blue Vitrol;
 One ounce Copperas;
 One ounce Spanish Brown;
 One ounce Asafœtida.

DIRECTIONS FOR SHOEING.

[“Shoeing a horse as most commonly practiced,” says WHITE, “has a destructive tendency, and produces a variety of diseases.” Although we believe that the proper the proper shoeing of a horse is of the utmost importance, and with the view to throw out some hints about it, we have made a few selections. Still, we cannot believe that the injury done to horses in shoeing, is not to the extent that WHITE and many others have fancied.]

THE CONCAVE SEATED SHOE.—The proper form and construction of the shoe is a subject deserving of very serious inquiry, for it is most important to ascertain the kind of shoe that will do the least mischief to the feet.

The concave-seated shoe presents a perfectly flat surface to the ground, to give as many points of bearing as possible, except that round the outer edge, there is a groove or *fuller*, in which the nail holes are punched, so that sinking into the fuller, their heads project but a little way above, and are soon worn down level with the shoe. The ground surface of the common convex shoe, is somewhat convex, and the inward rim comes first on the ground; the consequence of this is, that the weight, instead of being borne fairly on the crust, is supported by nails and the clincher, which must be injurious to the crust, and often chip and tear it.

The web of the shoe is of the same thickness throughout, from the toe to the heel; and it is sufficiently wide to guard the sole from bruises, and as wide at the heel as the frog will permit, in order to cover the seat of the corn.

On the foot side it is *seated*. The outer part of it

is accurately flat, and of width of the crust, and designed to support the crust, and the crust only, for it has already been proved, that by the crust alone, or rather the union between the numerous little plates proceeding from the crust, and the covering of the coffin-bone, the whole weight of the horse is supported. Towards the heel this flattened part is wider, and occupies the whole breadth of the web, to support the heel of the crust and its reflected part, the bar; thus, while it defends the horn, included within this angle from injury, it gives that equal pressure upon the bar and the crust, which is the best preventive against corn, and a powerful obstacle to contraction.

It is fastened to the foot by nine nails, five on the outside, and four on the inner side of the shoe; those on the outside extending a little down towards the heel, because the outside heel is thicker and stronger and there is more nail-hold; the last nail on the thinner quarter being farther from the heel, on account of the weakness of that quarter. For feet not too large and where moderate work only is required from the horse, four nails on the outside and three on the inside, will be sufficient; and the last nail being far from the heels, will allow more expansion there.

The inside part of the web is bevelled off, or rendered concave, that it may not press upon the sole. The concave shoe prevents the possibility of injury, because the sole can never descend in the degree in which the shoe is bevelled. A shoe bevelled still further is necessary to protect the projecting or pumiced foot.

While the horse is traveling, dirt and gravel are apt to insinuate themselves between the web of the shoe and the sole. If the shoes were flat they would be easily retained there, and bruise the sole, and be productive of injury; but when the shoe is thus bev-

elled off, it is scarcely possible for them to remain. They must be shaken out every time the foot comes in contact with the ground.

The web of the shoe is likewise of that thickness, that when the foot is properly pared, the prominent part of the frog shall lie just within and above its ground surface, so that in descent of the sole the frog shall come sufficiently on the ground to enable it to act as wedge, and to expand the quarters, while it is defended from the wear and injury it would receive if it came on the ground with the first and full shock of the weight.

The nail holes are, on the ground side, placed as near the outer edge of the shoe as they can safely be, and brought out near the inner edge of the seating. The nails thus take a direction inward, resembling the direction of the crust itself, and take firmer hold; while the strain upon them in the common shoe is altogether prevented; and, the weight of the horse being thrown on a flat surface, contraction is not so likely to be produced.

THE PREPARATION OF THE FOOT.—We will suppose that the horse is sent to the shop to be shod. If the master would occasionally accompany him there, he would find it much to his advantage. The old shoe must first be taken off. We have something to observe, even on this. It was retained on the foot by the ends of the nails being twisted off, turned down, and clenched. These clenches should be first raised, which the smith seldom takes the trouble thoroughly to do; but after going carelessly round the crust and raising one or two of the clenches, he takes hold of first one heel of the shoe and of the other, and by a violent wrench, separates them from the foot, and by a third wrench, applied to the middle of the shoe, he tears it off. By this means he must enlarge every nail hole, and weaken the future hold, and sometimes tears off portions of the crust, and otherwise injure

the foot. The horse generally shows by his flinching, that he suffers by the violence which this preliminary operation is performed. The clenches should always be raised or filed off; and where the foot is tender, or the horse is to be examined for lameness, each nail should be partly punched out. Many a stub is left in the crust, the source of future annoyance, when this unnecessary violence is used.

The shoe having been removed, the smith proceeds to rasp the edges of the crust. Let not the stander-by object to the apparant violence which he uses, for fear that the foot will suffer. It is the only means he has, with safety to his instruments, to detect whether any stubs remain in the nail holes; and it is the most convenient method of removing that portion of the crust into which dirt and gravel have insinuated themselves.

Next comes the important process of paring out, with regard to which is almost impossible to lay down any specific rules. This, however, we can say with confidence, that more injury has been done by the neglect of paring, than by carrying it to too great an extent. The act of paring is a work of much more labor than the proprietor of the horse often imagines; the smith, except he be overlooked, will give himself as little trouble about it as he can; and that, which in the unshod foot would be worn away by contact with the ground, is suffered to accumulate month after month, until the elasticity of the sole is destroyed, and it can no longer descend, and the functions of the foot are impeded, and the foundation is laid for corn, contraction, navicular disease, and inflammation. That portion of horn should be left on the sole, which will defend the internal parts from being bruised, and yet suffer the external sole to descend.

If the foot has been previously neglected, and the horn is become very hard the owner must not object if the smith resorts to some means to soften it a little;

and he takes one of his flat irons, and having heated it, draws it over the sole, and keeps it a little while in contact with it. When the sole is thick, this rude and apparently barbarous method can do no harm, but it should never be permitted with a sole that is regularly pared out.

The quantity of horn to be removed in order to leave the proper degree of thickness will vary with different feet. From the concave foot the horn may be removed, until the sole will yield to a moderate pressure. From the flat foot little need be pared; while the pumiced foot will spare nothing but the ragged parts.

The paring being nearly completed, the knife and the rasp of the smith must be a little watched, or he will reduce the crust to a level with the sole, and thus endanger the bruising of the sole by its pressure on the edge of seating. The crust should be reduced to a perfect level, all round, but left a little higher than the sole.

The heels will require very considerable attention. From the stress which is thrown on the inner heel, and from the weakness of the quarter there, it usually wears considerably faster than the outer one; and, if an equal portion of horn were pared from it, it would be left lower than the outer heel. The smith should, therefore, accommodate his paring to the comparative wear of the heels, and be very careful to leave them precisely level.

He should be checked in his almost universal fondness for opening the heels, or, more truly, removing that which is the main impediment to contraction. That portion of the heels between the inflection of the bar and the frog should scarcely be touched, at least nothing but the ragged and detached parts should be cut away. The foot may not look so pretty, but it will last longer without contraction.

The bar, likewise, should be left fully prominent,

not only at its first inflection, but as it runs down the side of the frog. The heel of our shoe is designed to rest partly on the heel of the foot, and partly on the bar, for reasons that have already been stated. If the bar is weak, the growth of it should be encouraged, and it should be scarcely touched at the shoeing, until it has attained a level with the crust.

The horn between the crust and the bar should be carefully pared out. Every horseman has observed the relief given to the animal lame with corns, when this angle is well thinned, a relief, however, which is but temporary, for when the horn grows again, and the shoe presses upon it, the torture of the animal is renewed.

The degree of paring to which the frog must be subjected, will depend on its prominence, and on the shape of the foot. It must be left so far projecting and prominent, that it shall be just within and above the lower surface of the shoe, it will then descend with the sole, sufficiently to discharge the functions which we have attributed to it. If it be the lower, it will be bruised and injured; if it be higher, it cannot come in contact with the ground, and thus be enabled to do its duty. The ragged parts must be removed, and especially those occasioned by thrush, but the degree of paring must depend entirely on this principle.

It appears, then, that the office of the smith requires some skill and judgment, in order to be properly discharged; and the horse proprietor will find it his interest occasionally to visit the shop and complain of the careless, or idle, obstinate, and reward, by some trifling gratuity, the expert and diligent. He should likewise remember that a great deal more depends on the paring out of the foot, than on the construction of the shoe; that few shoes, except they press upon the sole, or are made outrageously bad, will lame the horse; but that he may be very easily

lamed from ignorant and improper paring out of the foot.

THE PUTTING ON OF THE SHOE.—The foot being thus prepared, the smith looks about for a shoe. He should select one that as neatly as possible fits the foot, or may be altered to the foot. He will sometimes care little about this, for he can easily altar the foot to the shoe. The toe-knife is a very convenient instrument for him, and plenty of horn can be struck off with it, or removed by the rasp, to make the foot as small as the shoe; while he cares little, although by the destructive method, the crust is materially thinned where it should receive the nail, and the danger of puncture is increased, and a foot so artificially diminished in size will soon grow over shoe to the hazard of considerable or permanent lameness.

A shoe, thinner at the heel than at the toe, by letting down the heel too low, is apt to produce sprain of the flexor tendon, and a shoe thicker at the heels than at the toe, is fit only to elevate the frog, to the destruction of its function, and to its own certain disease, and also to press upon, batter and bruise that part of the foot which is soonest and most destructively injured.

CALKINS.—It is expedient that not only that the foot and ground surface of the shoe should be most accurately level, but that the crust should be exactly smoothed and fitted the shoe. Much skill and time are necessary to do this perfectly without the drawing knife. The smith has adopted a method of more quickly and more accurately adapting the shoe to the foot. He pares the crust as level as he can, and then he takes the shoe, at a heat something below red heat, and applies it to the foot, and detects any little elevations by the deeper color of the burned horn. This practice has been much inveighed against; but it is the abuse and not the use that is to be condemned. If the shoe be not too hot, nor held too long on

the foot, an accuracy in producing, or would not produce at all. If, however, the shoe is made to burn its way to its seat, with little or no previous preparation of the foot, the heat must be injurious both to the sensible and insensible parts of the foot.

Nothing is more certain, than that in the horse for work, the heels, and particularly the seat of corn, can scarcely be to well covered. Part of the shoe projecting outward can be of no possible good, but rather an occasional source of mischief, and especially in a heavy country. A shoe, the web of which projects inward as far as it can, without touching the frog, affords protection to the angle between the bars and crust.

Of the manner of attaching the shoe to the foot the owner can scarcely be a competent judge; he can only take care that the shoe itself shall not be heavier than the work requires—that for work a little hard the shoe shall be still a light, and a bit of steel welded into the toe—that the nails shall be as small, and as few, and as far from the heels, as may be consistent with the security of the shoe; and that, for light work at least, the shoe shall not be driven on so closely and firmly as is often done, nor the points of the nails brought out so high up as is generally practiced.

There are few cases in which the use of calkins (a turning up and elevation of the heel) can be admissible in the fore feet, except in frosty weather, to prevent the slipping of the feet. If the outer heel only be raised with the calkin, as is too often the case, the weight cannot be thrown evenly on the foot, and undue straining and injury on the part of the foot or of the leg must be the necessary consequences. Few things deserve more the attention of horsemen than this most absurd and injurious of all the practices of the smith. One quarter of an hour's walking with one side of the shoe or boot raised considerably

above the other, will painfully convince us what the horse must suffer from this too common method of shoeing. If the horse be ridden far to cover, or galloped over much hard and flinty ground, he will inevitably suffer from this unequal distribution of weight. If the calkin be put on the outer heel to prevent the horse from slipping, either the horn of the heel should be lowered to a corresponding degree, or the other heel of the shoe should be raised to the same level by gradual thickening. Of the use of the calkins in the hinder foot, we shall presently speak.

CLIPS.—These are portions of the upper edge of the shoe, hammered out, and turned up so as to embrace the lower part of the crust, and which is usually pared out a little to receive the clip. They are very useful, as more securely attaching the shoe to the foot, and relieving the crust from the stress upon the nails which would otherwise be injurious. A clip at the toe is almost necessary in every draught horse, and absolutely so in the horse of heavy draught, to prevent the shoe from being loosened and torn off by the stress which is thrown upon the toe in the act of drawing. A clip on the outside of each shoe at the beginning of the quarters will give security to it. Clips are likewise necessary on the shoes of heavy horses, and of all others who are disposed to stamp, or violently paw with their feet, and thus incur the danger of displacing the shoe; but they are evils, in that press upon the crust as it goes down, and should only be used when circumstances absolutely require them.

THE HINDER SHOE.—In forming the hinder shoes, it should be remembered that the hind limbs are the principal instrumets in progression, and that in every act of progression, except the walk the toe is the point on which the whole frame of the animal turns, and from which it is propelled. This part, then should be

strengthened as much as possible; and, therefore, the hinder shoes are made broader at the toe than at the fore ones, and the toe of the foot, which is naturally broader than that of the fore-foot, is still further widened by rasping. Another good effort is produced by this, that the hinder foot being shortened, there is less danger of over-reaching or forging, and especially if the shoe is made to slope inward, and is a little within the toe of the crust.

The shape of the hinder foot is somewhat different from that of the fore foot; is straighter in the quarters, and the shoe must have the same shape. For carriage and draught horses generally, calkins may be put on the heels, because the animal will be thus enabled to dig his toe more firmly in the ground, and urge himself forward, and throw his weight into the collar with great advantage. But the calkins must not be too high, and they must be of an equal height on each heel, otherwise, as has been stated with regard to the fore-feet, the weight will not be fairly distributed over the foot, and some part of the foot or leg will materially suffer. The nails in the hinder shoe may be placed nearer to the heel than in the fore-shoe, because, from the comparative little weight and concussion thrown on the hinder feet, there is not so much danger of contraction.

DIFFERENT KINDS OF SHOES.—The shoes will vary in substance and weight with the kind of foot, and the nature of the work. A weak foot should never wear a heavy shoe, nor any foot a shoe that will wear longer than a month. Here perhaps, we may be permitted to caution the horse proprietor against having his cattle shod too much by contract, unless he binds his hostler to remove the shoes once at least every month; for if the contractor, by a heavy shoe, and a little steel, can cause five or six weeks to intervene between the shoeings, he will do so, although the feet of the horse must necessarily suffer. The shoe should never be heavier than the work requires. An ounce

or two in the weight of the shoe will sadly tell before the end of a hard day's work.

THE BAR-SHOE.—A bar-shoe is a very useful contrivance. It is the continuation of the common shoe round the heels, and by means of it the pressure may be taken off some tender part of the foot, and thrown on another which is better able to bear it, or more widely and equally diffused over the whole foot. It is principally resorted to in cases of corn, the seat of which it perfectly recovers—in pumiced feet, the soles of which may be thus elevated above the ground and secured from pressure—in sand-crack, when the pressure may be removed from the fissure and thrown on either side of it—in thrushes, when the frog is tender, or has become cankered, and requires to be frequently dressed, and the dressing by this means alone be retained. In these cases the bar-shoe is an excellent contrivance, if worn only for one or two shoeings, or as long as the disease requires it to be worn, but it must be left off as soon as it can be dispensed with. If it be used for the protection of a diseased foot, however, it may be chambered and laid off the frog, it will soon be flattened down upon it; or if the pressure of it be thrown on the frog to relieve the sand-crack on the corn, that frog must be very strong and healthy which can long bear the great and continued pressure. More mischief is often produced in the frog than previously existed in the part which was relieved. It will be plain that the use of the bar-shoe for corn or sand-crack, the crust and the frog should be precisely on a level, and the bar should be the widest part of the shoe, to afford as extended bearing as possible on the frog, and therefore less likely to be injurious. Bar-shoes are evidently not safe in frosty weather; they are never safe when much speed is required from the horse, and they are apt to be wrenched off in a heavy clayey country.

TIPS.—Tips are short shoes, reaching only half round the foot, and worn while the horse is at grass to prevent the crust being torn by the occasional hardness of the ground, or by the pawing of the animal; and the quarters at the same time being free, the foot disposed to contract has a chance of expanding and regaining its natural shape.

THE EXPANDING SHOE.—Our subject would not be complete if we did not describe the supposed expanding shoe. It is either seated or concave like the common shoe, with a joint at the toe, by which the natural expansion of the foot is said to be permitted, and the injurious consequences of shoeing prevented. There is, however, this radical defect in the jointed shoe, that the nails occupy the same situation as in the common shoe, the gradual expansion of the sides and quarters, and allow only of a hinge-like motion at the toe. This is a most imperfect accommodation of the expansion of the foot to the action of its internal parts, and even this accommodation is afforded in the slightest possible degree, or rather scarcely can be afforded at all. Either the nails fix the sides and quarters as in the common shoe, and then the joint at the toe is useless; or, if that joint merely opens like a hinge, the nail holes in the shoe can no longer correspond with those in the quarters which are unequally expanding at every point; and, therefore, there will be more stress on the crust at these holes, which will not only enlarge them and destroy the fixed attachment of the shoe to the hoof, but will often tear away portions of the crust. This has, in many cases, been found to be the effect of the jointed shoe: The sides and quarters of the foot have been broken until it has become difficult to find a nail-hold. This shoe to answer the intended purpose, should consist of many joints, running along the sides and quarters, which would make it too complicated and expensive and frail for general use.

While the shoe is to be attached to the foot by nails, we must be content with the concave-seated one, taking care to place the nail-holes as far from the heels, and particularly from the inner heel, as the state of the foot and the nature of the work will admit; and where the country is not too heavy nor the work too severe, even omitting the nails on the inner side of the foot. Shoes nailed on the outer side, and at the toe, are more secure than one would imagine, while the inner quarter will be left free, to prevent its contraction, or to arrest its progress.

The attempt, however, to lessen the evils produced by shoeing is most praiseworthy. Every contrivance permanently to fix the shoe on the foot without the use of nails has failed.

FELT OR LEATHER SOLES.—When the foot is bruised or inflamed, the concussion or shock produced by the hard contact of the elastic iron on the ground gives the animal much pain, and causes a short and feeling step, or even lameness, and aggravates the injury or disease. A strip of felt or leather is sometimes placed between the seating of the shoe and crust, which, from its want of elasticity, deadens or materially lessens the vibration or shock, and the horse treads more freely and is evidently relieved. This is a very good contrivance while the inflammation or tenderness of the foot continues, but a very bad practice if constantly adopted. The nails can not be driven so surely or so securely when this substance is interposed between the sole and the foot; the contraction and swelling of the felt or leather from the effect of moisture or dryness will soon render the attachment of the shoe less firm; there will be too much play upon the nails; the nail holes will enlarge and the crust will be broken away.

After wounds or extensive bruises of the sole, or where the sole is thin and flat and tender, it is some-

times covered with a piece of leather, fitted to the sole, and nailed on with the shoe. This may be allowed as a temporary defence of the foot; but there is the same objection to its permanent use from the insecurity of fastening, the strain on the crust, and the frequent chipping of it: and there are additional inconveniences, that if the hollow between the sole and the leather be filled with stopping and tow, it is exceedingly difficult to introduce them so evenly and accurately as not to produce some partial or injurious pressure—that a few days' work will almost invariably so derange the padding as to produce partial pressure—that the long contact of the sole with stopping of almost every kind, will produce, not a healthy, elastic horn, but horn of a scaley, spongy nature—and that if the hollow be not thus filled, gravel and dirt will insinuate themselves, and cause unequal pressure, and eat into and injure the foot.

UNRULY ANIMALS.

COWS.

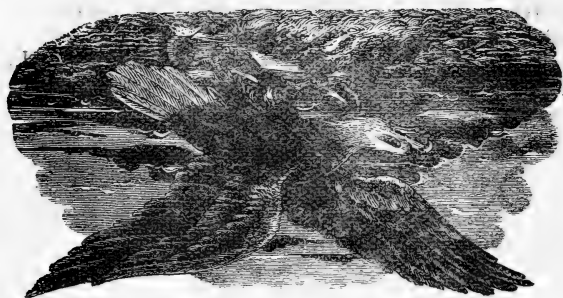
TO STOP COWS FROM KICKING WHILE MILKING.—Take a rope twelve feet long, tie a slip-noose on one end, and put around the under jaw, bring the other end down and through between her fore-legs, back to the hind leg on the side you wish to milk on, and tie to the hind leg: then go to milking, and she may go to kicking and bawling; let her kick and bawl: you can break her in two milkings, so that she will stand as well as any cow.

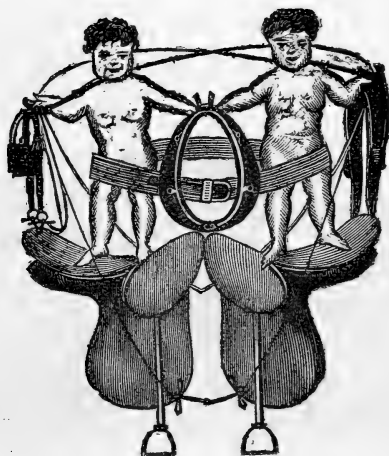
Another way is: draw a girth or strap tight around her belly just in front of her bag or elder, and by applying the same strap, you can break a cow of the habit of holding up her milk.

TO STOP A COW FROM SUCKING HERSELF.—Make an open ring about two and one-half inches in diameter the same as you would use to lead an ox or bull with by the nose; put it in the nose of the cow, and it will stop any one on the spot. They cannot suck when they raise their upper lip to get the teat; the ring drops down over the lip and they are disappointed at every effort.

HOGS.

TO STOP HOGS FROM ROOTING.—You will find a muscle or tendon running down each side of the pig's head or snout, and are inserted into the roots. Get some one to hold the hog on his right side; hold his hind legs; another person to put his knee on the shoulder of the hog, and put one hand on the upper jaw, and one on the under, just between the eyes, and hold the hog so that he cannot bite or squeal; then put your hand on his rooter and pull down and the muscles can be seen; raise up the skin on each side; take a small pen-knife and run the blade under the skin and muscle and cut them both off, and he will cease rooting.









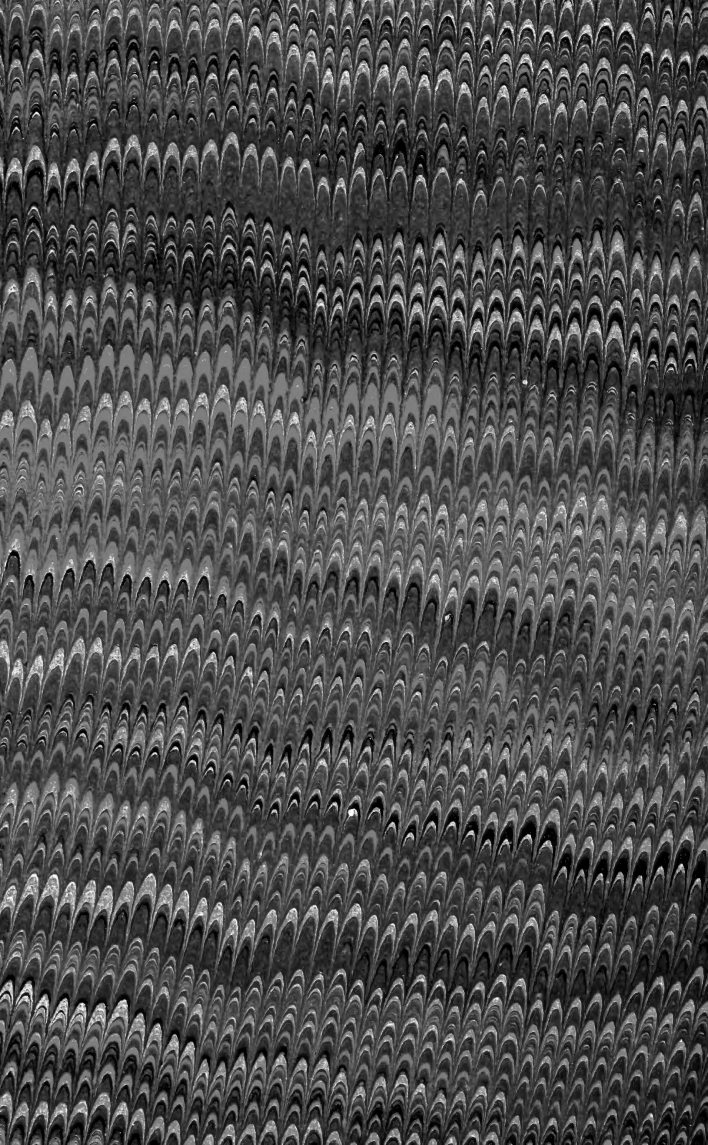


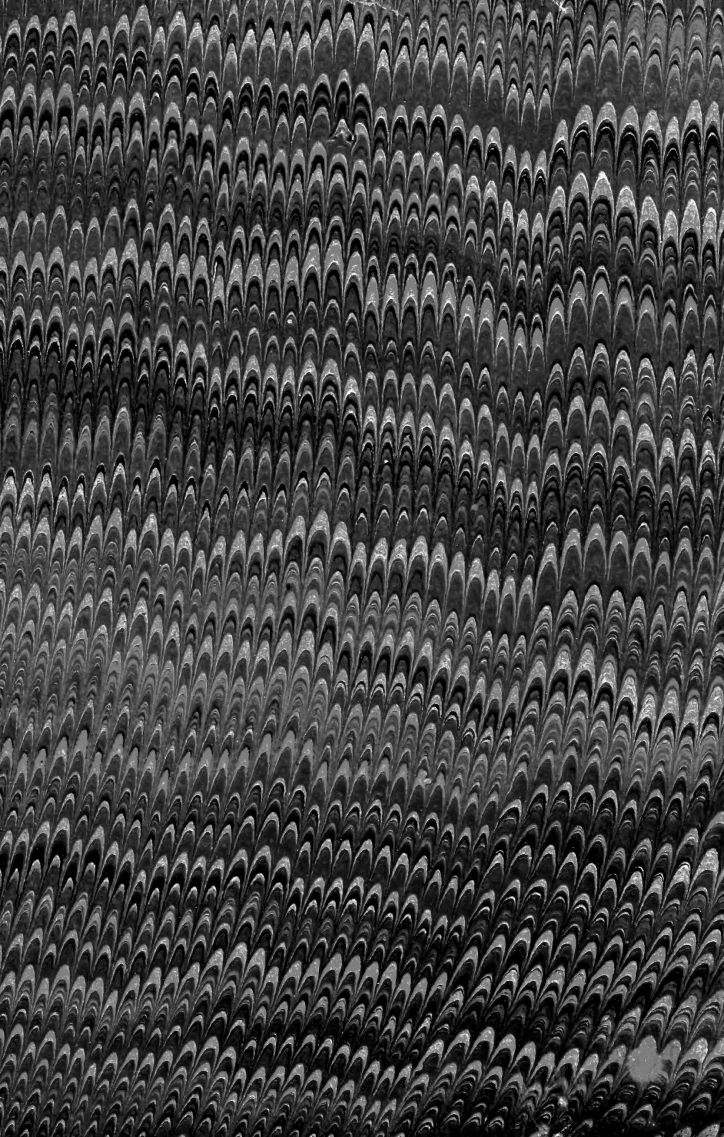












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